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Saturday, September 15, 1849.

Iron Ores and the Iron Manufacture of the United States.

Continued from page 562.

NEW YORK

Port Henry Mines and Furnaces.—In the vicinity of Port Henry, and near the Lake, are many mines of magnetic ores of no little extent and importance. They are found in the quartrose and granitic rocks, which at Port Henry are separated from the lake shore by a narrow strip of the lowest stratified sandstone and limestone.

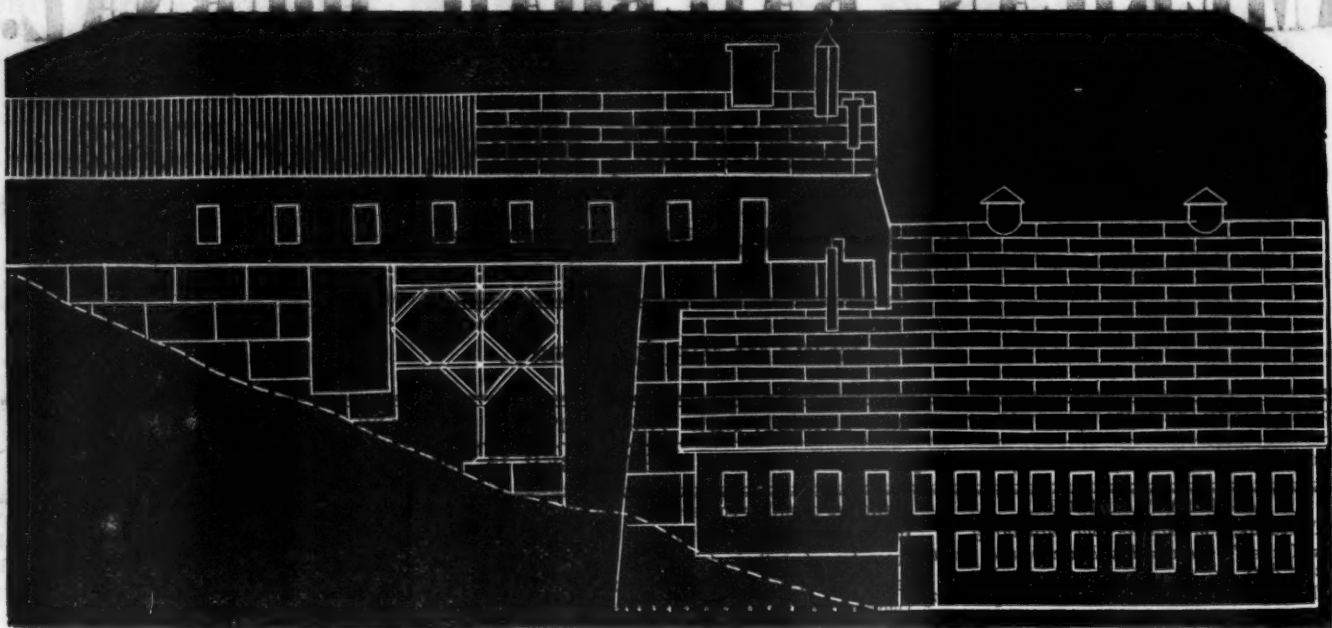
One of the most important of them is the *Cheever Mine*. It is opened half a mile back from the lake, and a mile and a half north of the furnaces; the course of the veins, however, take them down near to the waters edge. Two veins are found in elevated lands only about ten feet apart. They lie parallel to each other, pursuing a very straight course in a direction nearly N. N. W, S. S. E, and dipping together about 35° towards the west. The upper of these veins is about six feet thick, the lower from eight to ten feet. Both consist of a very pure mag-

netic ore of rather coarse grain, but little mixed with the quartrose gangue and wall rock. They have been traced on their strike more than half a mile, and over a considerable portion of this distance worked both by open cuts and tunnels to depths varying with the elevation of the surface—sometimes down the slope of the vein 170 feet. They are remarkably regular in their dimensions, furnishing everywhere about the same quantity of ore and of the same quality. The water makes but slowly in the mine, so that it causes no additional expense in working it. For many years large quantities of ore have been removed, and its cost during the years 1847 '48, when the operations were extensively conducted, was accurately ascertained. For mining the expense was 75 cents per ton, and for hauling to the furnaces 37½ cents more. Since that time contracts have been taken at 60 cents for mining, and for delivering at the lake shore 20 cents additional, making its actual cost at the lake, independent of its value in the mine, 80 cents. At the lowest point where the veins approach the lake, an adit level has been driven through the solid rock for the purpose of affording a more convenient exit for the ore and reducing the transportation to the lake to a distance not exceeding half a mile. After being taken to the shore, the ore is shipped from the new landing in boats for the various places where it is in demand. This adit laid out on the liberal scale of seven feet in width and six feet in height had been carried in 290 feet, when I last saw it in 1848, and had then reached the edge of the vein close to the old workings. Its whole cost had been \$4500; and when regularly at work, the expense of each running foot was found to be \$12. The rock is quartrose of loose texture and not very hard. The level of this tunnel will pass under the workings on the hill, and give access to many hundred thousand tons of ore with perfect security against trouble from water, and with a certainty of the continuance of the ore; for these are permanent veins, such as are never exhausted. Being about five times heavier than water, every cubic foot of the ore weighs about 300 lbs. A vein eight feet thick will consequently give for every foot in depth, in a length of half a mile, 3,168 tons of 2000 lbs. each. If the two veins average together no more than twelve feet, their yield for this distance and every hundred feet in depth would be 476,200 tons; but this half mile is by no means the full extent of their productive-

ness. Already have many thousand tons been taken away to be used at a great number of places. In the winter teams come every day to carry it to the forges scattered about in the country. The furnaces at Port Henry have consumed it in large quantities; and it has been sent to Saugerties in Ulster county—to Troy—to Mount Hope furnace near Whitehall—to Pompton, near Jersey—and some even to Boston. Its use at these places (excepting the Mount Hope furnace) has been to mix it with the pig metal in the puddling furnace, it being found to work with advantage at the rate of about 400 lbs. of ore to the ton of pig iron. Of this ore and the Sanford (principally, however, of the latter) it is estimated that 1500 tons per annum are consumed at Saugerties, 500 tons at Burdens works and by the Troy nail factory company, and 500 tons at the Troy rolling mill. The cost of transportation from Port Henry is as follows:—to Albany and Troy per ton of ore \$1.50; do. of iron \$1.81—to Saugerties per ton of ore \$2.00; do. of iron \$2.50—to New York per ton of ore \$2.25; do. of iron \$2.75. The ore has formerly been sold on the dock at Port Henry for \$3.00 per ton; but more recently at \$2.50. In Troy the Sanford ore sells for \$3.50. In the forges or bloomery fires the Cheever ore works easily, making iron fast, but not of the best quality; the pig metal, made from it in the blast furnace, though used for making bar iron, is not highly esteemed and never commands a high price, but the No. 1. iron makes excellent castings. The tables of the workings of the furnaces, which will be given below, show its yield in the large way where worked alone in furnace No. 1. blast No. 10. to have been about 67 per cent of cast iron.

Equal in extent to the Cheever bed just described is the *Sanford bed* situated about seven miles from Port Henry. This is owned five eighths by Messrs. Rousseau, Lee and Sherman; three sixteenths by the Messrs. Noble of Elizabethtown; and the remaining three sixteenths are among the assets of the Port Henry Iron company.—The ore of this bed is remarkable for its coarse crystalline grain and crumbly texture—qualities which are highly esteemed, as ores possessing them are generally reduced with great facility in the blast and puddling furnaces.—But for the bloomery fire some other magnetic ores are preferred to the Sanford. From its elevated situation in a hill this bed is free from water; and being beside very large, the ore is mined at very little expense. Three or four hundred tons have been thrown

South Side of the New Furnace at Port Henry.



down by a single blast, and the cost per ton for mining has not exceeded twenty five cents. I am informed that 7000 tons of this ore are probably sold per annum; its price at the mine has been \$1.50 per ton; and at the dock at Port Henry it has sold for \$2.80 to go to the Mount Hope furnace. Mr. F. H. Jackson of West Port has a contract for 20,000 tons mined and delivered at the bed for seventy five cents per ton.*

* Very exact analyses of the ores used at Port Henry have been made by A. A. Hayes, Esq., of Lowell; and his observations connected with the report of the analyses are of no little interest. The Cheever ore seems to represent in general character and ingredients most of the other ores. "Among the black granular masses composing the sample are minute crystals of titaniferous iron, apatite containing fluoate of lime, and a dark green amphibole mineral. The selected grains of the ore give fluoric acid and lime, and in every case phosphoric acid was observed. The ore is highly magnetic, but does not give the same proportion of the two oxides of iron as exist in magnetic oxide of iron.—The color and fracture also remove it from the class of magnetic oxide of iron. The analysis of a selected portion gave in 100 parts—

Per-oxide of iron,	70.00	
Prot. " "	12.31	
Phosphoric and titan- ic acids,	6.19	Pure iron in the mixed oxides 64.51 per cent.
Phosphate and fluo- ate of lime,	1.81	
Siliceous gangue,	0.36	
Traces manganese and loss,	0.33	
	100.00	

Mr. Hayes then remarks upon the occurrence of the phosphoric acid combined both with oxide of iron and lime in the ore, and also mixed with it in the form of apatite. Its effect is to cause the ore to melt freely, but in excess to impair the quality of the pig iron. The apatite may be removed by stamping and washing, and the bad effects of the remaining phosphoric acid may be obviated by the use in as large quantities as will melt to a fluid mass of earth, having alkaline bases; the acid then melting with these bases in the flux and is not reduced to the state of phosphorus by the iron.

The coarse grained Sanford ore Mr. Hayes found extremely pure, as also another sample of similar appearance, which he describes as from the Dalliba mine, occurring in large crystals. "The sur-

Besides these mines there are many others in the same vicinity. Rousseau, Lee and Sherman own one called the *New Bed*, only half a mile from the last described, which furnishes one of the best and purest qualities of the Champlain ores. Its texture is coarser than that of any other ore, the crystals being large and distinct, and slightly cohering together. The bed has been opened only two or three years, and though the ore has been sold at the rate of 300 to 400 tons per month, it is not regarded as likely to be among the most productive. The expense of mining is estimated at one dollar per ton. The ore sells for \$2.50 at the bed and for \$3.50 on the wharf at Port Henry.

About the same distance from the lake are *Storr* and *Rousseau's Bed*, which, not yet worked, promises to furnish much ore; *Fisher Bed*, worked and good; *Barton, Miller and Hall Beds*, the ores of which sell for about \$2, at the mines. *Everest* and *Green's Bed*, eight miles from the lake, has supplied some ore to the Port Henry furnaces; but it does not appear to be very productive.

Nearer to Port Henry are the *Dalliba ore*, a mile and a half distant, the *Crag Harbor bed* on the lake shore, a third of a mile from the works, both of which belong to the Port Henry Iron company: and

faces of the crystals are covered with a thin coating of titaniferous iron, which penetrates the flaws and allows the masses to divide very easily. Selected portions of the ore contain only 2.6 in 100 of siliceous gangue. Some large crystals afford in 100—

Per-oxide of iron,	62.94	
Prot. " "	31.66	Iron 67.63 per ct.
Titanic acid, trace of lime and oxide of manganese,	2.58	
Siliceous gangue,	2.60	
	99.78	

The Sanford ore gave a similar result, its gangue being 4.1 per cent. and its percentage of iron 66.74. These samples are considered "of unusual purity, surpassing most known ores in the proportion of iron. None of the samples have given any traces of phosphoric acid or any substance, which would prove prejudicial in working the ore." "For mixing with the Cheever ore they are admirably adapted, the effect of mixing being that of diminishing the proportion of phosphuret of iron in the iron produced."

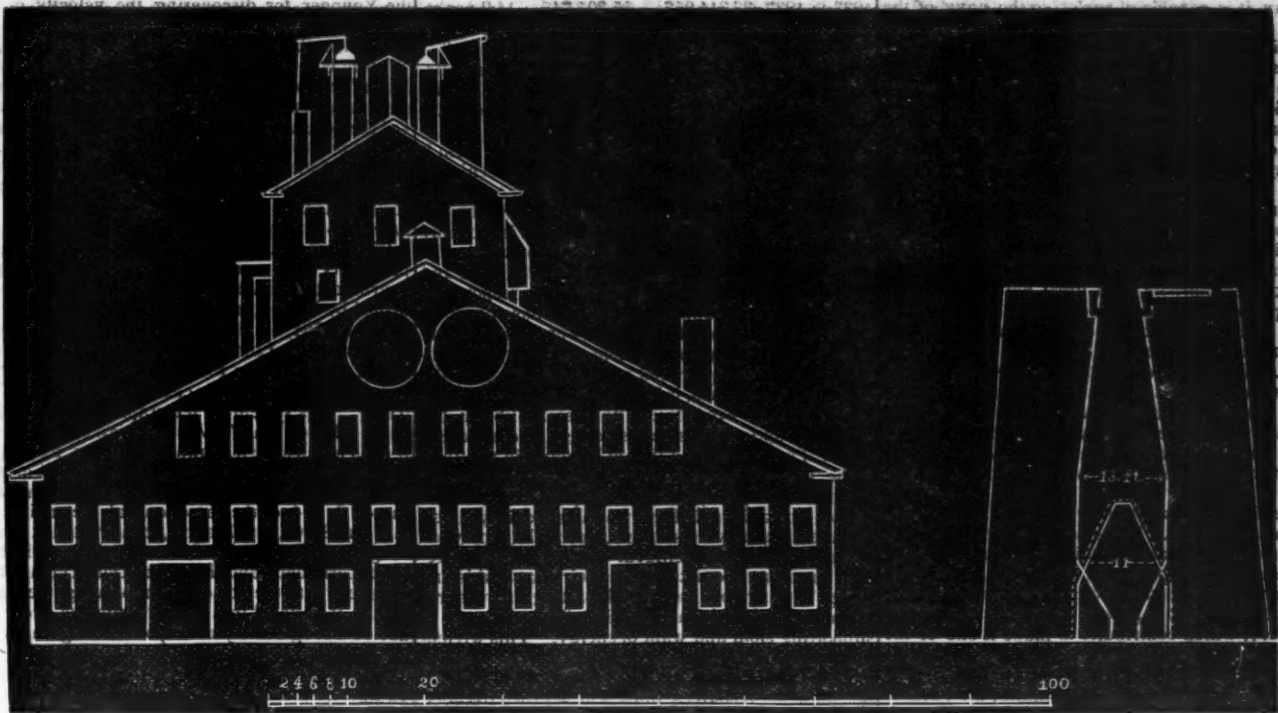
Foot and Goffs bed, half a mile north of the Cheever bed, and probably a continuation of it.

Though these ores do not occur in such immense deposits as ores found in other parts of the country, or even of Essex county itself, the amount of ore is extremely large, and it is distributed to a much better advantage for the country itself, than if in one body owned by one corporation. At the moderate price of \$1.50 per ton, the expense to the ton of iron is less than \$3.00—a price that a ton of good ore can hardly be purchased for in many other iron districts of the United States.

The works at Port Henry consist of two large blast furnaces and a cupola furnace holding about four tons of iron, and designed for turning out heavy castings, as large iron pipe, etc. It stands in the casting house of one of the furnaces. These are established on the same small stream of water, which just before emptying into the lake falls from a height of more than seventy feet. The upper furnace makes use of this stream three times over—first by a twelve foot wheel for stamps, circular saw, and grout-mill; then by a twenty four foot wheel for the blowing apparatus; and lastly a fall of five feet for the machine shop. The lower furnace, six or eight rods below the upper, built on the dock, has a fall of nine feet for the stamps, circular saw, and machine to grind grout, and one of nineteen feet for the blowing apparatus. In ordinary times the water is sufficient for the use of the works; and by a small expenditure in raising the little dam in the hill above the supply might be rendered almost sure at all times.

The site of the present new furnace (the upper one) has been occupied by a furnace for many years. In 1830, or thereabouts, the old stack was taken down and another built, and again this was replaced by a new one in 1847. This furnace, which had run only eighty two days, when the works were stopped in the spring of 1848, is one of the best built and complete establishments of the kind in the country. In the accompanying plates are given the elevation on the south side, the same at the end of the casting house, and a section of the stack and furnaces.—The cupola chimney is seen in the end elevation, standing near the northeast corner of the casting

End View of the Casting House.



house. It was to carry on the manufacture of castings on a large scale, making particularly water pipes for the cities, that this portion of the works received so unusual an extension, the casting house being made to cover about 8,500 square feet. To afford all the light possible, it is well filled with windows, as seen in the plans; and both it and the top house are protected from fire by substantial iron roofs.

The stack itself is built in the most thorough manner of hewn stone in fine large blocks; its dimensions and form are seen in the plans. The boshes receive three slopes, a favorite mode of building in this section of the country, though not approved by Karsten, nor adopted elsewhere in the United States. The hearth after running eighty two days is now of a circular form above the tewateres, six feet in diameter. The blowing apparatus consists of two cast iron cylinders, five feet diameter and six feet stroke. They are placed with the regulator in a small building to the northwest of the stack; and the blast pipe, carried from this over the roof of the casting house, enters the top house against the heating oven. This regulator which stands upright

through the roof of the building, is 20 feet high, diameter 5 feet 3 inches inside: it is made of sheet iron, one tenth of an inch thick. The blast pipe is 18 inches diameter. Beside this regulator is another, a water regulator, consisting of a tub 7 feet diameter and 11 feet high, inverted in another 10 feet diameter and 6 feet high. The blast is three to five revolutions per minute with a pressure of $1\frac{1}{2}$ to 2 lbs. to the square inch.

The heating pipes consist of four bed pieces, 15 inches diameter, laid two and two, side by side, and end to end; they reach across the oven, which is 18 feet long, and the level of their centre is 2 feet 3 inches above the charging plate. The two bed pieces on the south side, support eleven pairs of uprights, those on the north side eight pairs. These pairs are cast in one piece without the elbows at top for joining two separate uprights, as they are usually made. They are of oval form, eleven feet high, measuring inside $7\frac{1}{2}$ by 4 inches. The circle at top is 18 inches across and 22 inches from the outer edge at top to the crotch between the uprights; the iron is an inch thick. These pipes are cast at the furnace, patterns being kept of this and other forms.

The advantage of the arched pipes being made in one piece is to save joints and leakage; the objection is that when one gives out, it is not so easy to replace it as when the pieces are small and more numerous; but this is of little consequence if they can be made to stand like the pipes in the Crown Point furnace, (which were made at Port Henry) through the running of over 7,000 tons of iron.

The hot air is taken from the furnace by two flues which enter into the cylinder in the tunnel head: one of them is seen in the section. This cylinder, or rather frustrum of a cone, conforms in its shape to the top of the furnace. The flues are 14 inches wide and 10 inches deep; their floor is three feet below the charging plate; their length into the centre of the oven between the bed pieces is $7\frac{1}{2}$ feet. The oven which stands 5 feet 3 inches from the edge of the tunnel head, is 18 feet long, 7 feet wide and 16 feet high to the base of the chimneys.

The workings of this furnace will be given in the tables extracted from the furnace books, to follow in a succeeding number of the Journal. In them it is designed as No. 1, the lower furnace being called No. 2.

H.

Cuba and its Resources.

This beautiful island, one of the earliest discoveries of the great admiral, has been known to Europe since 1492, and has borne successfully the name of Juana, Fernandina, Santiago, and Ave Maria, and has found refuge from this confusion of titles in the aboriginal appellation. The most westerly of the Antilles, it equals in area that of all the other West Indies together, and is one of the large islands which approaches nearest the North American Continent one hundred and thirty miles, from which, an eminent Cuban naturalist maintains, by some great convulsion of nature at no very remote day, it has been separated. The length of the island, which extends nearly east and west, from the 74° to 85° west of Greenwich, is about six hundred miles, and its average breadth is about one hundred—between the 20th and 25th parallel of north latitude. It is blessed with the prodigal fertility of tropical climates

while the elevation of its mountains permits the productions of colder climates to thrive. This range of lofty mountains, extending from Cape San Antonio to the Putna de Mayai, divides the island into two equal portions, and on its declivities and in its valleys are regions as fertile and as healthful as any in the world. Rising to the height of 8500 feet, it contains the sources of various streams which abound with peculiar and delicious fish, and which bring down no inconsiderable portion of gold dust, once esteemed of importance; but which now is neglected because the labor necessary to collect it, it expended in the cultivation of the soil, would yield thrice the return. The mountains also abound in other mineral wealth, among which are copper, iron, and the magnetic stone. Silver is also found. The most valuable of these mines, however, are those of copper, which, since the completion of a portion of an elaborate system of railroad, one hundred

and ninety five miles of which are now in operation have proved most profitable investments. Principally in the hands of foreign capitalists, they employ many thousand miners, the wants of whom provide, for the small planters, that greatest of all protection and encouragements, a home market.

Marble and coal are also known to exist in inexhaustible quantities, and the value of the latter is daily becoming more apparent from the rapid consumption of wood by the immense *azucararias* or sugar estates of the island. This coal, exceedingly bituminous, is evidently an out crop of the great asphaltum beds which, in more than one of the Antilles, evince themselves in the lakes of mineral tar. It is now employed in the gas works of the city of Havana, and has been found of great purity and good quality.

The island abounds in magnificent harbors, one of which, that of Havana—named, tradition says,

from an Indian goddess of the name, a statue of whom is placed over more than one of the gates of the city—is probably the best in the world.

With a narrow entrance, expanding into a magnificent bay, it is capable of enclosing the navy of the world, and from the earliest day has been so carefully fortified as to be considered impregnable. Neither history nor scrutiny sustain this idea, for, in the middle of the eighteenth century, an expedition under the orders of the British Admiral Vernon, composed of a small force of royal marines and a few regiments of colonial troops, landed a few miles below the city, all the defences of which, including the Moro, it carried without unusual difficulty. The new art of war, with its immense batteries, steam and rockets, would certainly reduce the place to necessity in a very short time. Matanzas, Trinidad, Santo Domingo, Cienfuegos, and Puerto Escondido are also excellent harbors, with great natural facilities for improvements and fortifications.

The climate is, when we consider the latitude, salubrious, the year being divided into a dry and wet season. The warmest portion of the year is July and August, when the mean temperature of each day is about 84° Fahrenheit. The coldest is in December, when the mercury ranges at about 50°, except when the wind known as *el norte* blows, during which the instrument shows a rapid declension.

So fertile a soil is not known to exist in any other portion of the globe. It has been known to produce three crops a year, and in ordinary seasons two may be relied on. The profusion of its flora, the variety of its forests are unsurpassed; while the multitude of its climbing shrubs give a luxuriant richness to its scenery, which contributes to make it one of the most fascinating countries in the world. No where is life so easily supported, and man so delicately nurtured. In addition to the plantain, the yuca of two varieties, the potato, yam, Indian corn, rice, melons, chesnut, cocoanut, pineapple, amara or custard apple, medlar, banana, orange, lemon, shaddock, and lime abound. The growth of the forests comprise the mahogany tree, cedar, lignumvitæ, various kinds of ebony, the noble palm tree, and numerous woods for building.

On this island, capable of supporting in opulence a population equal to that of Spain, are strewn less than a million and a half of men, of which six or seven hundred thousand are white, two hundred thousand free negroes, mulattoes, and zambos, while the rest are slaves. It is supposed that but two-fifths of the island is cultivated, the rest being wilderness, uninhabited, and despoiled, by ruthless Spanish avarice, of the glorious forest trees which struck the early navigators with so much amazement.

The chief riches of the island result from its exports which consist of sugar, coffee, tobacco, wax, cocoa, molasses, honey, rum, maza, etc. The first of these is infinitely the most important, and is probably the only one which is regularly increasing, in spite of the changeable seasons, hurricanes, and the immense direct and indirect taxation to which the planters are subjected. The great increase may be estimated from the fact that in 1842, 617,648 boxes were exported; and in 1847, 1,274,811. The exports for the last fiscal year ending with November were 1,210,917. Of other articles, during the same time, were exported 708,941 arrobas (25 lbs.) of coffee, 205,559 hogsheads of molasses, 11,909 pipes of rum, 4,647,737 pounds of tobacco, 141,239 boxes (thousands) of segars, and 561,826 quintals of copper ore.

The cultivation of coffee has nearly been destroyed. Nothing shows the great decline of the trade more than the fact, that in 1837, 2,133,567 arrobas were exported, while in 1848, there were only 708,491. The consequence is, that a great portion of the *cafetal* are now abandoned, and the land appropriated to grazing, sugar estates, or rice planters. The tobacco crop rapidly increases, and will as long as the passion for Havana and Principe segars shall last. The plant is peculiarly different from our own, maturing in less time, and the soil is able always to bring two crops per annum. In 1842 the crop was 5,942,833 lbs. in 1847 it rose to more than 9,000,000. That of 1848 was somewhat diminished by a season unusually unpropitious, and by hurricanes.

The following table shows that there has been a gradual increase of exports for many years, and of consequent prosperity:

	Yearly av. of imports and exports.	Increase during 5 years.	Per cent of increase.
1829 to 1832	\$30,920,111		
1833 to 1837	36,314,956	\$5,395,745	14.9 per ct.
1838 to 1842	49,073,615	12,759,659	25.9 "
1843 to 1847	50,149,797	1,076,182	2.1 "

The number of arrivals during 1847, at its ports, was 3,740, and the number of clearances 3,346. The amount of American tonnage employed in trade with it is 476,773 tons.

Such are the resources of Cuba, and from them it is customary to conclude that the island has enjoyed a paternal government and enlightened care from the crown of Spain. Such, is not, however, the case; for, of all countries in the world, it is probably the most and worst governed. All power in the hands of two officers, the captain general, civil and military governor, and the intendente, responsible directly to the Spanish crown, who has charge of the fiscal affairs and of commerce—crowds of greedy Spaniards in every employment—an army of twenty thousand men quartered on a population of 1,500,000—vexatious taxes, infringements on natural right monopolies of every thing, unblushing liberty, flagrant corruption, constant espionage, and an ecclesiastical system behind that of England in the times of the Tudors, are its principal features. Rigid censorship of the press, a want of all provisions for education, and a degraded and worthless nobility, arrest the attention of every stranger, and make him wonder how any race intelligent as are the Cuban creoles, can remain quiet and see their beautiful island doing nothing for itself, and wasting its treasures upon a people which prize it only as a means of supporting sloth and want of energy. This wretched state of affairs points to a reaction, but when it comes, Cuba with her population of 1,500,000, and her immense resources, must win her own freedom, or, if she do not, will deserve to be enslaved.—*Re-public.*

A few Remarkable Facts about Electricity and Electric Telegraphs

BY GEORGE LITTLE.

It is nearly 1800 years since Pliny, the historian, made his observations on the property possessed by amber; it is also no less remarkable than an astonishing fact, that this branch of science should have been so neglected—nothing more than the attractive power of amber being noticed during a space of nearly 1600 years, until William Gilbert, and a London physician published a treatise on this subject in Latin; previous to this, as I before said, little or no notice was taken of the attractive property of amber, which was destined to be a forerunner of a science so varied, and at the same time so very wonderful in its results, so much so as to strike even the electrician himself with astonishment—he only knows it from its results, nothing more, not even whence it comes. We pass on from Gilbert, of Colchester, to Nicholas Cabocus, at Ferrara, who was employed, in 1630, following out Mr. Gilbert's experiments. In 1670, a Mr. Boyle made some discoveries which had escaped the observations of his predecessors and contemporary. With Boyle, we hear of Otto Gnerick, the burgomaster of Madgeburg, inventor of the air pump, making some advances, when for the first time, an electrical machine was made, which consisted of a globe of sulphur, mounted on an axis in a wooden frame, his hand being the rubber; with this machine he discovered the attractive and repulsive property of electricity, which is the very soul of an electric telegraph. In 1675 we hear of Sir Isaac Newton giving an account of similar experiments. From 1675 to 1788 little or no further progress was made, when at this time, 1721, a Mr. Stephen Grey, a pensioner at the Charter House, commenced his experiments with his friend, Mr. Wheeler, who, by their experiments, proved that the electric current may be conducted to a great distance. In 1733, Du Fay, an attendant in the gardens of the king of France, repeated the above experiments of Grey and Wheeler, by passing the electric current through a line 1266 feet in length, which line, I presume from the following, was not a metallic one. Mr. Grey, in 1734, invented metallic conductors, by passing the fluid through iron rods. In 1742, a Benedictine monk at Erford, conveyed the fluid through wires 200 yards in length. In 1745, more attention was

paid to this science. Experiments to be tried were publicly advertised and exhibited for money in Germany and Holland. In 1747, Dr. Franklin made his observations on the experiments of M. Monnier, the Younger, for discovering the velocity of electricity, by passing a current through iron wire 4000 feet in length; and on the 18th of July, 1847, Dr. Watson completed the electric circuit through the River Thames at Westminster. In another experiment, tried on the 5th of August, same year, he proved the conductive power of the earth by suspending a wire one mile in length; and on the 14th of August he repeated the same experiment through two miles of wire at Shooter's Hill, in Kent, making the earth itself part of the circuit, which was a very great step towards a practical application of the electric telegraph. Previous to this, many minor experiments were made by him. The first telegraph instrument of which we have any account, is furnished by Young, in his travels through France (in the year 1784, 4th edition, vol. 1, p. 49); it is stated here that a M. Lomond had invented a mode, by which from his own room he held converse with a person in a neighboring chamber by means of electricity. His system of telegraphic correspondence is not related. In *Voight's Magazine*, 1794, vol. 9, p. 1, is an electric telegraph, made by Reizen; his plan was the use of intermittent sparks of electricity, for which purpose he used 72 conducting wires. In vol. 2, p. 4, of the same journal, we are informed that Dr. Salva, in Madrid, constructed a similar telegraph, the Prince of Peace being a witness to the experiments, and the Infant Don Antonio being engaged with the doctor in improving the instruments; it is stated that the experiments were conducted through many miles; but here again, as with the former, no description is given in detail.

We now pass on from 1794 to 1809, when one Samuel Sommering, taking advantage of the discovery of Volta, invented his voltaic electric telegraph; in his apparatus he took advantage of the decomposition of water while under the influence of a voltaic pile. Such telegraph was constructed and used in the following manner:—Through the bottom of a glass reservoir 85 golden points were made to project, marked A. B. C. &c., 25 of which were marked with 25 letters of the German Alphabet and the 10 numerals; the 35 points were each connected with an extended copper wire soldered to them, and extending through a tube to the distant station, and then soldered to 35 brass plates upon a wooden bar; through the front of each plate a small hole was left for the reception at pleasure of two brass pins, which were in connection with the battery of voltaic pile—one with the zinc, the other with the copper; each of the 35 plates were lettered, and the corresponding points in connection also. The glass vessel was filled with dilute acid; therefore, whenever contact was made, or in other words, the two brass pins of the battery were placed in two holes of the brass plates, so as to complete the circuit; an evolution of gas immediately took place at the golden points in connection, so that whatever letter such point was known by, such was the letter intended to be transmitted—for this telegraph 35 wires were required.

In the *Encyclopedia Britannica*, 7th edition, page 662, we see an account of an electric telegraph invented in 1816, by a Mr. Ronalds, of Hammer-smith; his instrument consisted of a circular brass plate fixed upon the seconds arbor of a clock, which beat dead seconds; this plate was divided in twenty equal parts, each division being worked by a figure a letter, and a preparatory sign; the figures were divided into two series of units, and the letters were arranged alphabetically, except the letters J, Q, U, W, X, and Z. In front of this was fixed another brass plate, which could be occasionally turned by the hand, and which had an aperture just large enough to expose one of the figures, letters and preparatory signs at pleasure. In front of this plate was suspended a pith ball electrometer, which was insulated, and in communication with an electrical machine on one side, and on the other with the conducting wires, which were buried in the earth, enclosed in glass tubes; at the further end of the wires was an apparatus exactly the counterpart of that just described, and adjusted so as to beat together as nearly as possible; his method of operating was to charge the wires with electricity, so as to cause the pith balls to repel each other. It must be borne in mind

that the plate with the signs was constantly being carried round with the seconds arbore of each clock; the plate with the aperture remained stationary, so that immediately the pith balls were seen to diverge or repel each other, that moment the sign or letter which was being exposed through the aperture, was the sign or letter intended to be transmitted, so that by means of such discharge at one station, and by marking down the letters, figures, and signs seen at the other, any required word could be spelt. This experiment was tried through eight miles of wire, in the first instance suspended upon silken cords, and in the second through 525 feet of wire enclosed in glass tubes, and buried in the earth. The proper name of the instrument should have been a "Uniformity of Time Telegraph."—*Min. Jour.*

From the Nashville Banner.

The Number of Iron Establishments in Tennessee—East Tennessee and her Railroads.

The following is a reliable estimate of the number of Iron Establishments in *Middle Tennessee*; as well as their comparative daily, weekly and yearly production; and motive power by which they are operated.

Dickson county.—One blast furnace, owned by Robert Baxter; makes 1,000 tons of pig metal per annum and uses steam power.

One blast furnace, called the Louisa Furnace, built in 1844, by Robert Baxter, and now owned by him; makes 40 tons per week of pig metal. Uses steam power.

One blast furnace called the Cumberland Furnace, owned by Anthony Vanleer, 8 miles from Cumberland river; makes 2,000 tons of pig metal per annum. Uses steam power.

One blast furnace, called the old Tennessee furnace, built in 1797, R. S. Napier. *Now out of use.*

One blast furnace, called the Belview furnace, built by M. Bell, in 1826. *Now out of use.* Part steam and part water power.

One blast furnace, called the Piety furnace, built by R. C. Napier in 1833, now owned by W. C. Napier; makes 40 tons of pig metal per week. Water power.

One blast furnace, called the Carroll furnace built by E. W. Napier in 1826; made 25 tons of pig metal per week. *Out of use.* Water power.

One blast furnace, called the Worldly furnace, built by M. Bell, in 1845, and now owned by him. Capable of making 40 tons of pig metal per week. Steam power.

One forge, called the Horse Shoe forge, owned by Robert Baxter; makes 20 tons of blooms per week. Uses water power.

One forge called Baxter's Steam forge, now owned by Robert Baxter, and is one mile from Cumberland river. Uses steam power.

One forge, called the Valley forge, built by M. Bell. *Out of use.* Used water power.

One forge, called the White Bluff forge, built by R. C. Napier in 1830, now owned by R. C. Napier; makes 2,500 lbs. bar iron per diem. Uses water power.

One forge, called the Turnbull forge, built by R. C. Napier 1818; now owned by Napier and Robertson; has made as much as 2,000 lbs. of hammered bar iron per day. Water power.

Dickson county has 10 furnaces and 5 forges in and out of operation.

Montgomery County.—One furnace and forge together, owned by Steel and Socks, built in 1802; makes 95 tons of pig metal per week. Uses water power.

One do., called the Sailor's Rest, located on Yellow creek, owned by Robert West, averages 1,000 tons of pig metal per annum. Uses water power.

One do., called the Washington Iron Works, once turned out 30 tons of pig metal per week. *Now out of use.* Steam power.

One do., called the Lafayette furnace, owned by Stewart and Die; makes 30 tons of pig metal per week as well as sugar kettles. Uses steam power.

One do., called the Webster furnace, owned by Jackson and others; makes 39 tons of pig metal per week. Steam power.

One forge, owned by Robert West, 2 miles from Sailor's Rest; makes 30 tons of blooms per week.

One do., called the Blooming Grove Iron works; forge and rolling mill owned by the Messrs. Nibblits; makes 30 tons of pig metal per week. Uses Steam power.

Montgomery county has 5 furnaces, 3 forges and 1 rolling mill.

Williamson County.—One blast furnace, built by the Messrs. Spears in 1832. *Out of Use.*

Humphreys County.—One blast furnace called Fair Chance, built by Vanlier, Hillman & Co., 2 miles from the Tennessee river; makes 30 tons of pig metal per week. Water power.

One blast furnace, called the Duck River furnace,

owned by S. B. Lee, once made 40 tons of pig metal per week. *Out of Use.* Water.

One forge called the Epps and Jackson forge, built by the same in 1846; makes 20 tons of blooms per week. Water power.

Humphreys county has 2 furnaces and 1 forge.

Hickman County.—One furnace called the Aetna furnace, built by M. C. Napier in 1835; makes 2,000 tons of pig metal per annum. Steam power.

Two bloomeries, built by H. Perkins, owned by W. Easley; makes 400 lbs. of bar iron per day each. Water power.

Hickman county has 1 furnace and 2 bloomeries.

Davidson County.—One called Paterson's Iron works, built by M. Bell in 1830, and now opened by him; makes 40 tons of blooms per week. Water power.

Lawrence County.—One bloomery, owned by Huger, built in 1830, called the Jackson forge; manufactures 400 lbs. of bar iron per diem.

One bloomery, built in 1844, on Grand Duddy's creek by James Kelly; makes 400 lbs. of bar iron per diem. Steam power.

One bloomery, called the Buffalo iron works, owned by W. C. Napier; the blast furnace and forge make 36 tons of pig metal per week. The forge 35 tons of blooms. Water power.

One bloomery, called the Back Woods forge, owned by Dotson and Tinner, situated on the Little Buffalo; makes 200 lbs. of bar iron per day. Water power.

One bloomery, called the Shoal Creek bloomery, built by Hardin Perkins in 1828. *Out of use.*

Lawrence county, 3 bloomeries, 1 furnace and 2 forges.

Stewart County.—One furnace, called Patona, built in 1844, owned by Thomas Kirkman; makes 1,800 tons of pig metal per annum. Steam power.

One furnace, called the Bear Spring, owned by Woods, Staker & Co., 2 miles from the Cumberland river; makes from 1,800 to 2,000 tons of pig metal per annum. Steam power.

One furnace, called the Dovefurnace, made 1,500 tons of pig metal per annum. Steam power.

One furnace, called the LaGrange furnace, owned by Woods, Stacker & Co.; makes 1,500 tons of pig metal per annum. Steam power.

One rolling mill, called the Cumberland Rolling mill, owned by Woods, Stacker & Co.; averages 2,000 tons assorted bar iron per annum. Steam power.

One rolling mill, called the Ashland Iron works—blast furnace and forge together—owned by James L. James; makes 30 tons of blooms per week. Steam power.

Stewart county has 5 furnaces 1 rolling mill and 1 forge.

Wayne County.—Mount Jasper furnace, built by Royal Forgeson, now opened by John W. Walker, makes 2,000 tons of pig metal per annum. Water power.

One furnace, called the Clay furnace and the 48 forge owned by John W. Walker; the forge makes 1 ton of bar iron per day. Uses water power.

Wayne county has 2 furnaces and 1 forge.

Decatur County.—West Point furnace makes 600 tons of pig metal per annum. Steam power.

One furnace, called Brown's Fort furnace, built by S. Vanleer, in 1838; makes 800 tons of pig metal per annum. Uses steam power.

Decatur county, has two furnaces. There may be possibly a few more furnaces and forges in middle Tennessee, which I have not enumerated.

WEST TENNESSEE FURNACES, FORGES, BLOOMERIES AND ROLLING MILLS.

Hardin County.—Marion blast furnace and forge, owned by James Walker, of Columbia, makes from 800 to 1,000 tons of pig metal per annum. Steam power.

One furnace, called the Wayne furnace and forge, built by S. Vanleer, in 1833—now out of use. Steam power.

Hardin county has 2 blast furnaces and 2 forges.

Perry County.—Cedar Grove furnace, built by Dixon and Dickerson, in 1837, double stacks; makes 50 tons of pig metal per week per stack. Uses steam power.

One furnace, but I do not know any thing about this. Perry county has two furnaces.

Madison County.—One blast furnace, of this, also, I know nothing.

EAST TENNESSEE'S FURNACES, FORGES, BLOOMERIES, AND ROLLING MILLS.

I have no reliable data, by which I can at present estimate the number of Iron establishments, in East Tennessee, and must therefore resort to the census of 1840, to approximate the number. In 1840 East Tennessee had twelve furnaces and seventy bloomeries, forges and rolling mills. Of furnaces, Carter county had 3, Claiborne 2, Green 1, Johnson 1, Roane 1, Sevier 1, Sullivan 1, Washington 2.

Of bloomeries, forges and rolling mills. Blount county had 2, Campbell 5, Carter 8, Claiborne 7, Grainger 1, Green 7, Johnson 19, Knox 2, Meigs 18. Total of the former 12, of the latter 70. Since 1840, East Tennessee, I think, has not increased the number of her Iron establishments, but of this I am uninformed.

Total number of furnaces in Tennessee at present, 47. Total number of bloomeries, forgeries and rolling mills 92. Middle Tennessee has more furnaces, East Tennessee more forges, bloomeries and rolling mills. In Tennessee also, there are several foundries and engine establishments, the most important of which, are the foundries and engine establishments of the Messrs. Ament and Anderson, of our own city.

In iron manufacturing importance, Tennessee is the third State in the Union. Pennsylvania first, New York second. Pennsylvania, by the census of 1840, had of furnaces 213, of bloomeries, forges and rolling mills 169. Capital invested, \$7,771,471; number of operatives employed, including mining operatives, 11,552. New York, of furnaces, had 106, of bloomeries, forges and rolling mills 120; capital invested \$2,103,418 men employed, 3456. Tennessee had of furnaces 34, bloomeries, forges and rolling mills, 99; capital invested \$1,514,763; men employed 2,266.

Tennessee, in 1850, will not occupy the same relative position. For while these two States have spread a net work of railroads, canals and turnpikes over the entire territorial domain, making accessible, and developing their coal and mineral resources, Tennessee like a horse in a treadmill, has continued to pursue the same narrow and tardy revolution. Why should New York and Pennsylvania exceed Tennessee either in the number of iron establishments, or the value and importance of their products? Tennessee has more iron ore, and of a better quality than either; her labor, provisions and lands, are cheaper; her coal fields are more extensive, and it has long been decided for all manufacturing purposes her bituminous is far preferable to the Anthracite coal; her power, if that be a desideratum, is far more abundant than theirs. But this is not a consideration. For both in Europe and America, steam is rapidly superseding water power.—By far the greater number of manufacturing establishments in Tennessee, are operated by steam power; so they are in New York, Massachusetts and Pennsylvania. New York and Pennsylvania, when they commenced their glorious career of Internal Improvements, did not, like Tennessee, stop to count the cost. They knew as soon as their improvements were completed, the enhanced value of their lands, the increase of every variety of manufactures, the development of their multifarious resources, the wonderful growth of their cities, and the multiplication of capital and population from abroad, the advanced value of all real and personal estate—all these would definitely require them for their investments, and expenditures. Have they not already more than realized these once supposed beatific visions?

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Wilder's Lee-way Indicator.

Mr A. A. Wilder, of this city, has perfected one of the most simple instruments imaginable, for the purpose of determining the lee-way which a vessel may be making at all times while on her voyage—and by which the latitude and longitude of a ship can always be determined without the usual observations, and with no other trouble than simply referring to the log for a correct run, and where the workings of the "Indicator" are regularly recorded. Indeed so perfect and useful is this invention, that with it any precise point may be made, after taking the usual bearings, notwithstanding the vessel may be making the greatest rate of lee-way, as her course can be altered to meet the variations marked out by the "Indicator" to the wheelman. The contrivance is as simple as the invention is important, and as sure to record its lee-way as the compass is to indicate the vessel's bearings. It consists of a tube 4 inches in diameter, running down from the binnacle of a vessel to the keel, through which passes a rod, and to which is attached, immediately under the keel, a vane, about 8 inches deep, and two feet long. This being in dense water, is sure to be operated upon by any lee-way the vessel may make, which is indicated by the needle at the top of the rod, which is placed upon a plate on which the degrees are marked, situated between two compasses in the binnacle.

The instrument has been shown to nautical gentlemen of this city, and to officers of the navy, and all seem unanimously to concur in opinion, that, next to the compass itself, the invention of Mr. Wilder is the most useful instrument in the art of navigation. Mr. Wilder who is also the inventor of the "Steamer Telegraph," now being so universally adopted on board our boats, and in the various machine shops where an engine is used, will make the necessary application to Congress, at its next session, to have his "Indicator" adopted in the navy; and judging of its

utility from our limited knowledge of the subject, and the assurances of those who have had much nautical experience, we doubt not of the inventor's complete success, and that his invention, within a few years, will be considered such a necessary appendage, that no vessel will proceed to sea without it.—*Detroit Commercial Bulletin.*

Ship Canal at the Falls of Sault Ste. Maria.

We are glad to perceive the earnest movement making by our citizens in that region, for the accomplishment of this desirable object.

By the last number of the "Lake Superior News," we find meetings have been held in different sections of this part of our State, for the furtherance of this object.

At Eagle River, on the 16 August, of which, Levi Hanna, Esq., was Chairman and Dr. L. W. Clarke, Secretary. Also, of a meeting held on the 20th inst., at Ontonagon, of which Dr. S. Case, Esq., was Chairman, and M. Beaser, secretary, together with a meeting held on the 27th inst., at this place of which, Hon. John W. Allen, U. S. Mineral Agent, was President, and Dr. Manning and Chas. Bacon, Secretaries.

At the mass meeting at Eagle River, after its being opened by the Chairman, it was addressed by Wm. A. Otis, Esq., of Ohio, Gen. E. J. Roberts, and others, and Gen. R., after reviewing the position of this section of country, and detailing its history from the time when this State, in 1837, made an appropriation to build a ship canal around the Falls of Ste. Marie's River, up to the present time, and offered a preamble and resolutions appropriate to the subject, which, from their great length, we are unable to insert, and would refer the reader to the published proceedings.

A General Convention is to be held upon the subject at Eagle River, some time in October. The resolutions set forth the wants and interests of our State, in that section, and the duty incumbent upon the General Government, to aid in the construction of this great National Thoroughfare; the cost of the construction and the great benefits and advantages to result thereby; the reduction of the price of the mineral lands, to the minimum price; the construction of piers and lights at certain prominent points,—also, the principle of changing the present mode of assessing and collecting the taxes, which will require the attention of next Legislature. As in the words of one of the resolutions, "That the course pursued by this State in chartering mining companies, releasing them on paying into the State Treasury one per cent, not only from further state taxation, but excepting their entire personal property from any taxation whatever for town and country purposes, is oppressive and wrong, and that whilst we consider the one per cent a sufficient tax, we must insist upon the State refunding annually to the county Treasuries of the counties where property of companies are located, their reasonable quota of their taxes for town and county purposes."

We trust the project of the construction of the Canal will receive the favorable consideration and active zeal of our Senators and Representatives in Congress.

We might enlarge our own comments upon this subject, but the importance of it is already appreciated by the public.—*Detroit Free Press.*

We copy the following extract from a very interesting article in the London Mining Journal upon the mineral resources of Wales, a section of Great Britain, from which we import a large portion of the pig and railroad iron now used in this country. The great facilities for the manufacture of iron presented in its numerous coal and iron beds, united with their near access to tide water, renders the Welch the most formidable rival that our manufacturer has to encounter; and a correct knowledge of the advantages possessed by the former should be thoroughly understood in this country, either for the purpose of enabling us to balance it by a proper protection, or in case this cannot be done, to prevent our engaging in a branch of industry which must certainly prove disastrous.

In taking a cursory survey of these vast and various repositories of mineral wealth, we may recommend our investigations on the southern borders, and progressively extend them to the northern extremities of the principality. The magnificent coal field, trending along the shores of the British Channel, over an extent of nearly 100 miles in length, and having a variable breadth of from 5 to 20 miles, first claims our attention. The area of this coal field is estimated to be 1055 square miles. Within

this vast tract, 64 seams, or veins of coal, have been proved to exist—having an aggregate thickness of 190 ft., and embracing all qualities, from extremely bituminous coal to pure anthracite. The denuded valleys which intersect this coal field are deep and numerous, and the strata are also much broken by faults. The natural facilities, indeed, afforded both for obtaining and disposing of its valuable contents, are rarely equalled. The veins of coal and argillaceous ironstone, the latter, sometimes amounting to 16 in number, are not unfrequently so situated as to be easily worked by adits or levels; and it is affirmed that the coal can be shipped at the ports of Newport, Swansea, or Cardiff, at about the same rates as the coal in the Tyne and the Wear.

There is much coal here of an inferior quality—it varying greatly in different parts of the field; but, on the whole, it appears, according to experiments, that the useful and evaporative qualities of the various veins considerably exceed those of the Yorkshire, Newcastle, Lancashire and Scotch coal fields. Though the mining operations in this vast extent of coal formation may be said to be in their infancy, and its mineral treasures, comparatively speaking, nearly unwrought, the present annual consumption is estimated by Mr. Richardson to be as follows:—In the iron works in South Wales, 1,500,000 tons; in the copper works, 300,000; in the tin plate and other works, 200,000; in agricultural and domestic uses, 1,000,000; and in exports, 1,500,000—making together, a total consumption of 4,500,000!—an amount of destruction which, considered prospectively, with regard to the growing increase of demand, may well excite our apprehensions that this grand storehouse of Nature will be exhausted at no very distant period. However, but a glance at the magnitude of its carbonaceous contents goes far to dispel these fears; and when we attempt calculations on the data already obtained, we are compelled to acknowledge that no definite limits can well be assigned to the duration of the supply. Mr. Bakewell, the eminent geologist, computed, some 16 or 20 years ago, that the South Wales coal field would supply England with coal for 200 years after all the English coal mines are worked out; but at that period it appears that the 23 known beds of workable coal made together but 95 feet in thickness, which Mr. Bakewell calculated would yield 100,000 tons per acre, or 65,000,000 tons per square mile; whereas, as above intimated, there are now 64 seams discovered, possessing an aggregate thickness of 190 ft., which, if not exceeded, is probably maintained throughout the greater portion of the 1100 or 1200 square miles comprising the surface extent of this noble coal field. What a teemful source have we, then, here alone of national prosperity!—a very fountain of incalculable wealth, which, since the auspicious day its seal was first broken, has never ceased to pour forth a magic stream, gradually increasing in volume and importance, diffusing itself over the barren and thirsty lands in ten thousand fertilizing rills, awakening the spirit of industry, amply rewarding manual labor, and imparting impulse and success to commercial activity and enterprise.

Indeed, the increased and acceleratory value of landed and vested interests, and the vastly advancing importance of the local towns, bear ample testimony to that progressive and general prosperity which has already resulted from the development of the mineral resources of Glamorganshire. While Swansea has arisen into a handsome town of some 18,000 inhabitants, its immediate vicinity presents one universal scene of industrial energy and bustling competition, pleasingly and instructively exhibiting the power and utility of the resources entombed in the adjacent hills, when brought to bear on the skill and intelligence of the British manufacturer. The principle features of these operations are the immense establishments for the smelting of copper, the brass and tin works, and the extensive potteries. And not only are great quantities of coal, iron and lime exported from Swansea, but the quays are almost constantly burdened with large heaps of copper ore, &c., brought from the distant shores of Cuba, Chili and Australia, to be smelted in the neighboring furnaces.

Then, again, if we turn to Merthyr Tydvil, on the northeastern borders of the coal field, we shall find that this town, which was but an insignificant village towards the middle of the last century, has rapidly

become the largest town in the country, now numbering upwards of 25,000 inhabitants.

Its increase and prosperity have solely emanated from the vast mines of coal and ironstone existing in its surrounding neighborhood. Owing to the facilities thus afforded for smelting iron, most extensive works have been erected here, and to which the rich hematite iron ores of Devon, &c., and the black specular ores of North Wales, are brought by the canal from the port of Cardiff. It is computed that, altogether, about 160,000 tons of iron are annually produced in the immediate vicinity of the town. The coal-measure ironstone yields upwards of 30 per cent. of metal; but the imported iron ores are much richer, yielding from 60 to 80 per cent. of metal; and it would appear that much of the coal here is peculiarly adapted for their reduction, and which, in fact, to make good quality of iron from the best ironstone, should be as free as possible from every substance with which sulphur is combined, as well as possess the property of forming a hard coke. It were unnecessary here to cite further evidence of the extent and importance of mining operations in this extensive coal field—that already adduced, abundantly attests this; and it must be obvious to all, that wherever such works are duly opened, they cannot fail, according to their extent and character, to produce analogous effects, pregnant with substantial good, and abounding prosperity.

The South Wales coal field is geologically based on mountain and transition limestone, massive ranges of which may be seen traversing the western edges of the coal measures, and a narrow belt of the latter extends from Carmarthen to Wenlock, in Shropshire. These calcareous deposits repose in turn on the Silurian and Cambrian groups of slate rocks, (occasionally appearing amongst them) which occupy so large a portion of Southern and Central Wales. The former is chiefly composed of the grauwacke series, passing into the old red sandstone; whilst the latter, in which organic remains are found, is of a more homogeneous, compact, and crystalline character, affording the best material for roofing slates, &c., of which we will presently have occasion to speak. These great slate formations are regarded as the most metaliferous rocks; they contain nearly all the principal metallic ores found either in beds or veins, lead and copper being the greatly predominant metals. The mountain limestone is richer in lead, but the lead ore in slate rock contains a larger portion of silver; 30 ounces to the ton is here, perhaps, about the maximum, but in some of the mines scarcely a trace of silver is to be found.

Railway Management.

The great depreciation that has been going steadily on for some time past in the market value of railway shares, cannot be owing to the fact that this kind of property is any the less valuable than when it commanded the highest price. In the roads themselves, and in whatever is connected with them, there has been a constant improvement, and of course increased value, and the rapid growth of the country is steadily adding their business. The cause of this decline is mainly attributable to the over estimate put upon the value of this kind of property, both by directors and the public, from payment of a higher rate of dividend than could be sustained, which carried their stocks to a point far beyond their true value. The mistake has arisen from want of experience in these matters, which, it is not to be expected, could keep pace with the very rapid development of railroads. The full earnings of roads have been paid to stockholders, in many cases, without any provision being made out of them for depreciation of property, which, in their equipment, in the various kinds of wood work used, runs all the way from 10 to 20 per cent., to say nothing of items of a more durable character. From the faulty manner in which the reports of companies have been made, and the want of any general and uniform regulations to secure a full and correct exhibit of the absolute condition of roads, it has been impossible for any per-

son, save a director, to form a correct opinion as to the true value of their stocks. The amount of stock actually paid up was no evidence of the cost of the road. Neither was it correctly represented by the amount of stock and its reported indebtedness; for the debts generally embraced those only that were liquidated, and the amount required to complete the road after being put in operation, was a matter of entire uncertainty, and could only be determined by the result as the work progressed. The great fluctuation in the price of some of the leading Massachusetts railroads is attributable to these causes, rather than to any unwise or imprudent expenditure of money. The management of their directors has not so much lessened the real value of their stocks as their want of sufficient foresight and experience gave them a fictitious one. The result to the purchaser under these circumstances, however, is the same as if his loss had been caused by actual misfeasance, and if any measure can be resorted to, which will prevent a recurrence of the evils we have been considering, they should certainly be adopted.

Railroads are now regarded as one of the necessary instruments of business, and they will continue to be built till every portion of the country is penetrated with them, whether they pay good dividends or not. They will soon become our leading monetary interest. It is a wise feature in our laws to interfere as little as possible with individual liberty and the free management of property. We think that this can be preserved, and at the same time the public can always be put in possession of the necessary information as to the value of our roads; so that every person may know the actual worth of any railroad stock he may purchase.

Let each State institute a commission, composed of men of acknowledged character and reputation as engineers, whose duty it shall be on the opening of any road, or any section of it, of 20 miles or more in length, to make a thorough examination into the affairs of such road and report—

- 1st. The actual amount expended on the portion opened.
- 2d. The sums necessary to complete the road, or such portion as may have been opened.
- 3d. The amount of indebtedness of the road.
- 4th. The character of the work, and the probable amount that will be annually required for repairs and depreciation of property and deterioration of way; and such further information as may be necessary to give a full and accurate knowledge as to the condition and value of such road, it being made obligatory upon directors to furnish under proper sanctions all the information required of them.

The enactment of such a law, the leading features of which, we have, in general terms, indicated, would leave the management of the road entirely to the direction of the directors; and at the same time it would effectually guard as far as should be the policy of government to do so, the right of individuals, by placing in his hand proper evidence of the value of such property as he may be desirous of purchasing. It will give a steady and uniform value to railway stocks, and preserve it against those violent fluctuations so often witnessed, and effectually put an end to the present enormous amount of gambling in railway stocks, by which so many are ruined, by putting it out of the power of designing and cunning men, to make dupes of the weak and inexperienced. We hope that the suggestions we have now so hastily thrown out will before long receive the attention which we think their importance demands.

Massachusetts.

The Essex Railroad.—This Railroad, which is destined (as we believe) to be of much importance to our city and vicinity, as well as to all who dwell along its borders, even into the remote interior, still exhibits an encouraging state of business. Several full cargoes of lumber and lime have been recently transported from Philips's wharf to Laurence, North Andover, &c.; other cargoes of coal, wood, &c. are in progress of transportation as soon as the facilities of the Company can accommodate them, and other cargoes are now on the way for Salem, designed for the same destination. The permanent track is now nearly completed on to Philips's wharf, thereby affording increased facilities of transportation, and we understand that an increase of operative material of the road is to be provided in freight cars, &c. to meet the accumulating business of the road.

The passenger trains are also fairly patronized, and furnish excellent facilities for daily communication with the interior. The Freeman states, that if a sufficient number of delegates and others will leave their names at their office, to go from this neighborhood to the State (Free soil) Convention at Worcester on Wednesday next, then a special train will leave Salem at a quarter before six in the morning, pass over the Essex, Laurence and Lowell, Stony Brook (and Worcester and Nashua we presume) Railroads, arriving at Worcester about 9 o'clock and return the same night. Fare \$1 75 for the trip to and from Worcester.—*Essex Register.*

Ohio.

Central Ohio Railroad.—The first meeting of the newly elected Directors of this company was held in this place yesterday. The Board was organized by the choice of Col. J. H. Sullivan as President, Daniel Brush Treasurer, and D. H. Lyman Secretary. The resignation of A. J. Smith, Esq., of Licking, one of the Directors elected, was received, and placed on file.

It gives us pleasure to state that the Board, in compliance with the wishes of the stockholders, and in full view of the importance of immediate action upon the interests confided to them, have entered into and partially concluded negotiations with a gentleman of much merit and experience, by which it is believed that his services as Chief Engineer will be secured for the road. Arrangements to that end have proceeded so far that a definite decision will be had by about the 20th of the current month. If engaged, he will enter, with a corps of competent assistants, at once upon his duties.

Forward is the word with the Directory, and we are sanguine that the confidence reposed in them will be fully justified by their acts.—*Zanesville Courier.*

Tennessee.

We take from the Nashville Union the following facts in relation to the Nashville and Chattanooga Railroad:

In our last, we announced, on the authority of the Philadelphia Ledger, the sale, by Mr. Stevenson, of \$300,000 of the bonds issued by the corporation of Nashville for stock in the Nashville and Chattanooga railroad. He delivered \$220,000 of the bonds. The calls due on the 1st November, and 1st January next, \$40,000 each, will complete the amount of 300,000. These bonds were purchased by some of the wealthiest and most sagacious bankers of the east, and at a higher price than city stocks sell for. This fact shows the confidence of eastern capitalists in the value of our road, and the certainty they feel that its stock will pay a handsome profit.

In addition to the facts stated in the paragraphs from the Ledger, Maj. Allison informs us that Mr. Stevenson has left for Europe, with the money realised from the sale of our corporation bonds, for the purpose of purchasing iron for the road. He expects now to purchase this iron for about \$40 per ton, deliverable in New Orleans. If we recollect right, the original estimate placed the cost of iron at \$80 per ton, and its aggregate cost at about one million dollars. If Mr. Stevenson purchases the iron now at \$40, this will be a saving of \$500,000—reducing the cost of the work in that amount. This great saving will of course add vastly to the value of stock in the road. We have no doubt whatever that the stock will bear a high premium within the first six months after the road is opened.

We learn that it is the intention of the directors to push the work on the entire line with additional energy. It is now all under contract from this place to the Tennessee river, and the contractors will be required to complete the grading so that the road will be ready for the iron, which is expected to arrive early next spring. During the next year, some fifty or sixty miles of the road, commencing at Nashville, will be completed, and the cars placed upon it. This is a most gratifying prospect, and will no doubt incite the stockholders to the prompt payment of the calls of the company. It should also be regarded as of vast importance to our city; as hastening the day when we are to become a great commercial and manufacturing city. Rapid as has been the recent growth of Nashville, the first year of its advance after the completion of the great work to which our corporation so wisely lent its aid, will outstrip in its results any ten years of its previous progress.

Buy Your Iron Now.

English railroad iron is now selling at about \$40 per ton in our market. In consequence of this extreme low price, all the rolling mills in this country have given up the making of rails, and will not commence the work again until the price goes up to about \$55 per ton. The English manufacturer therefore, has control of the market till they reach this point, and it is not reasonable to suppose that, as he can have \$50 per ton without the risk of American competition, he will long continue to sell at \$40. A rise in the price of rails must soon take place, which must sensibly increase the cost of a road that does not purchase this important article at its present low point.

Railroad Damages.

At the Supreme Court in Berkshire, on Saturday, the jury rendered verdicts for the plaintiffs in the cases of Daniel B. Campbell, and same and wife, against the Berkshire R. R. corporation, of \$4000 in the second action. The claim was for an injury caused to the plaintiffs while crossing the track in a wagon near West Stockbridge. The negligence charged upon the defendants was, in not ringing the bell for the distance of 80 rods from the crossing as required by the statute. The case had previously been tried but the jury could not agree.

The injury caused to the plaintiffs was of a remarkable character. The train struck the wagon, in which the plaintiffs and their little son were, just in front of the forward wheels, instantly upsetting it and throwing the persons upon the ground near the rail. On examination, it was found that the three were more or less hurt in the right heel. Mr. and Mrs. Campbell had each the right heel cut off, but otherwise were uninjured.—*Springfield Republican.*

California Gold.

The Philadelphia North American publishes the following authentic statement from the United States Mint.

The deposits of California gold to the 31st of August were:	
At the Philadelphia Mint	\$1,740,620 07
At the New Orleans Mint	175,918 73
	1,916,538 80
Add the deposits of 1848	44,177 00
Total deposits from California	1,960,715 50
The coinage of gold dollars at the Mint in Philadelphia to the 31st ultimo was	
At the Branch Mints to July 31st	462,539 00
	133,227 00
Total coinage of gold dollars	\$595,766 00

Cumberland Coal.

A writer in the Philadelphia Inquirer states that notwithstanding the extravagant accounts of bituminous coal being found near Panama, as well as a few miles from Monterey, and on Vancouver's Island, Howland and Aspinwall are now supplying their Pacific steamers exclusively with Cumberland coal, which is taken around Cape Horn. The British West India steamers are also importing large quantities of it into Bermuda; and the Cunard line

of steamers from New York to Liverpool consume no other on their return trips.

AMERICAN RAILROAD JOURNAL.

Saturday, September 15, 1849.

Glendon Refined Iron.

Round Iron, Band Iron, Hoop Iron,
Square " Flat " Scroll "
Axles, Locomotive Tyres,
Manufactured at the Glendon Mills, East Boston, for
sale by GEORGE GARDNER & CO.,
5 Liberty Square, Boston, Mass.
Sept. 15, 1849. 3m37

Pennsylvania Railroad.

PROPOSALS will be received at Johnstown, Cambria county, Pa., between the 1st and 12th of October next, for the Graduation and Masonry of that portion of the Western Division of the Pennsylvania Railroad east of Section No. 54, opposite Blairsville—a distance of 26 miles—embracing a considerable amount of heavy excavation and embankment.

Plans and specifications of the work may be seen at the office, in Johnstown, within the periods above mentioned.

For further information apply to Edward Miller, Esq., Engineer of the Western Division, Summit P. O., Cambria county, J. EDGAR THOMSON,

Chief Engineer and General Superintendent.
Engineer Department P. R. R. Co.,
Philadelphia, Sept. 6, 1849. }

To Steam Engine Builders.

THE undersigned offer for sale, at less than half its cost, the following new machinery, calculated for an engine of 62 inches cylinder and 10 feet stroke, viz:

- 2 Wrought Iron Cranks, 60 inches from centre to centre.
- 1 Do. do. Connecting Rod Strap.
- 2 Do. do. Crank Pins.
- 1 Eccentric Strap.
- 1 Diagonal Link with Brasses.
- 1 Cast Iron Lever Beam (forked).

The above machinery was made at the West Point Foundry for the U. S. Steamer Missouri, without regard to expense, is all finished complete for putting together, and has never been used. Drawings of the cranks can be seen on application to

HENRY THOMPSON & SON,
No. 57 South Gay St., Baltimore, Md.

Sept. 12, 1849.

The Memory of the late G. W. Whistler.

We take pleasure in giving place to the proceedings of a meeting of Civil Engineers recently held in this city to take measures to erect a suitable testimonial to the memory of the late Col. Whistler. In our paper of the 19th May we noticed his greatly lamented demise in what we deemed appropriate terms, and in our paper of the 2d of June we gave a minute account of the great work, with which, of all others, his memory will be most intimately connected. His position at the head of his profession in this country, with his great experience and reputation as a man of practical science, secured to him, an American, in the face of all European competition, the construction, for the Emperor of Russia, of far the greatest work ever yet attempted in modern engineering; and though he was not permitted to witness its final completion, the work was so far advanced under his care, that its completion could have added nothing to his reputation had he lived.

The character of such a man is an honor to us as a nation, and as we all share in the advantages it secures to us, it is but fitting that we should unite in a testimonial to his worth, and we feel assured that his grateful countrymen while they cherish his worth will give expression to their regard by erecting a suitable monument to his memory.

At a meeting of Civil Engineers, held on the 27th August, at the office of the Panama Railroad, in this city, for the purpose of suggesting measures expressive of their respect for the memory of the late G. W. Whistler, W. H. Sidell was called to the Chair, and A. W. Craven appointed Secretary.

The following resolutions were then offered and unanimously adopted:

Resolved, That the memory of the late G. W. Whistler should be, and is warmly cherished by the members of that profession, of which, both at home and abroad, he was an ornament.

Resolved, That the erection of a monument in Greenwood Cemetery would be a suitable mode of expressing the feelings of the profession in this respect, and that an association be formed to collect funds, and take all steps necessary to effect this object.

Resolved, That as officers of said association, Captain W. H. Swift be appointed President, Major T. S. Brown, Treasurer, and A. W. Craven Secretary;—and that such officers have power to issue the necessary notices, collect funds, and disburse them, to call meetings, and in general to take all other steps which may be necessary to promote the object of this meeting, and moreover that they have power, and are hereby especially requested to invite the brethren of the profession generally throughout the United States, to join them in this common tribute to professional and private worth.

Resolved, That Horatio Allen, W. C. Young, J. W. Adams and A. W. Craven be appointed a committee to procure designs and estimates for the proposed monument, and to select a suitable piece of ground at Greenwood Cemetery.

Resolved, That feeling that a proper appreciation and respect for the memory of the late G. W. Whistler is not confined to the members of his own profession, but is widely and warmly felt by all who were known to him, both in his public and private life—the opinion of this meeting is, that a cordial invitation should be given to all such friends to join them in raising and dedicating this monument to his memory.

Resolved, That to give to all who wish to join in the object of this meeting, the earliest information of these proceedings, they be published in the Railroad Journal and in one or more of the daily papers of this city.

On motion, the meeting adjourned.

Signed. W. H. SIDELL, Chairman.

Indiana.

Peru and Indianapolis Railroad.—Unavoidable absence from our office prevented our earlier notice of the report of the Chief Engineer of this road, W. J. Holman, Esq., which was received a few weeks since. The line of this road, as its name indicates, extends from Indianapolis to Peru on the Wabash and Erie Canal, a distance, we believe, of about 80 miles, making, with the Madison and Indianapolis road, very nearly a direct line between Madison on the Ohio and Peru, which fact alone constitutes it one of the most important roads in this State.

We have frequently spoken of roads in this State, and as they all possess very similar characteristics, we should be in danger of repeating what we have already said in our Journal, should we give a lengthened notice of this. The topographical features of this State, the abundance of timber, and the comparatively small cost of land for right of way, enable its people to build their roads much cheaper than the roads of any other State. At the same time there is no state where they will be more useful and nowhere will they exert a more beneficial influence upon the value of property, by bringing the farmers in communication with a market at all seasons of the year. The first section of this road, embracing 22 miles, is in a state of forwardness, and it is expected that this portion will be in operation in the month of October next.

The cost of this section is estimated as follows:

For grubbing and clearing, grading and bridging.....	22,955 02
For the superstructure.....	32,780 00
For the iron, estimated at 2,000 per mile.....	44,000 00
Total cost of 1st division ready for locomotive power.....	\$100,745 02
Total cost per mile.....	4,670 32

From the estimated cost of iron, we presume that the flat rail is to be used. This, as a general rule, is poor economy in the long run, where means can be obtained to lay down the heavy rail. This item would nearly double the cost of the road, and if required, might postpone its construction for some time. As the great use of the road is for the conveyance of freight where high speed is not necessary, the kind of rail proposed will answer very well until the country should acquire sufficient strength to purchase a more expensive one, which will not be many years after the road shall be opened. The wooden superstructure obviates a part of the defects of the flat rail, consisting of heavy mud sills, 12 inches thick, facing at the least eight inches, with cross ties six feet apart from centre to centre, let in the mud sill so as that the string piece, four by five inches may have a perfect bearing at every point.

We have for sometime expressed the opinion that the western roads will be the best paying roads in the country. The great necessity that exists for them secures the encouragement of the whole community and the grant or sale at the lowest cost of such lands as are necessary for right of way, and depots etc., while the immense amount of agricultural products of this section seeking a market, will give them ample business, and we believe them to be worthy the attention of capitalists, as offering good opportunities for investment, and affording undoubted security for loans after a proper amount shall first have been expended by those living along the lines.

The President of this road is E. Cottingham, Esq., of Nobbsville.

Great Western Railway of Canada.

We have in hand the prospectus of this company, which is prosecuting the construction of a railway from Niagara Falls, via Hamilton, to Windsor opposite to Detroit. A mere glance at a map of the Canadas and the United States is sufficient to convince any one of the great importance of this road as a connecting link between the roads west of Buffalo and extending to the cities of New York and Boston on the one hand and the Michigan Central, which will be soon extended by the construction of an additional link to the Mississippi river, on the other. It must always possess the superiority over any other route, by uniting leading and important roads by the shortest possible line, thus securing a large part of the business they enjoy. In addition to this source of income, it passes through one of the finest agricultural sections in this country, which is alone capable of affording it a good support. The route presents more arguments in favor of the construction of this road than can be brought in support of almost any other road that we know of.

Its estimated cost is \$6,000,000, of which \$1,000,000 has been subscribed in Great Britain, and 1,000,000 in the United States, and 500,000 in Canada, leaving 3,500,000 to be provided for. Renewed efforts are now being made to obtain further subscriptions in Canada, and agents are about to visit this country and Great Britain for a similar object.

The general characteristics of the road we give as follows:—

DIVISIONS.	TABLE OF DISTANCES IN MILES.		
	Mail Road.	Rail-way.	Air Line.
Niagara Falls to Hamilton.....	49-50	42-10	41-23
Hamilton to London.....	85	75-84	74-20
London to Windsor.....	115-50	109-95	108-54
Total.....	250-00	227-89	223-96

LINEAR ARRANGEMENT.

DIVISION.	Tangent in miles.	CURVES IN MILES					Total Length.
		Radius 11460 ft.	Radius, 5730 ft.	Radius, 2865 ft.	Radius, 1910 ft.		
Eastern	39-82		1-87		0-41	42-10	
Central	70-91	0-39	1-42	2-52	0-58	75-84	
Western	106-38	1-53	2-04			109-95	
Sarnia Branch.	47-24	1-59		1-02		49-85	
	264-38	3-51	5-33	3-54	0-99	277-74	

TABLE OF GRADIENTS.

DENOMINATION OF GRADE.	NAME OF DIVISION.				
	Eastern.	Central.	Western.	Pt. Sarnia Branch.	Total.
Level and under 5 feet per mile	Miles. 21-37	Miles. 34-83	Miles. 85-52	Miles 41-40	Miles, 183-12
5 to 10 ft. per m.	4-15	2-06	8-50	8-45	23-16
10 to 20 ft. p m.	8-55	14-75	6-11		29-41
20 to 30 ft. p. m.	8-03	9-75	6-82		24-60
30 to 40 ft. p. m.		3-35	3-00		6-35
45 ft. max. west		11-10			11-10
Total	42-10	58-84	109-95	49-85	277-74

We learn that Mr. Tiffany, one of the Directors of this road, is soon to be in New York to present its claims before our people.

Georgia State Manufacturer's Convention.

A convention of manufacturers of this State, was held at Stone Mountain on the 17th ult., the object of which was the adoption of such measures as would promote this interest, which has now become a very important one in this State. The meeting was organized by the appointment of Dr. C. Rogers of Upson, to the Chair, and appointing John S. Linton of Athens, Secretary.

The following manufacturing companies were found to be represented, viz:

Factories.	Represented by	Capital
Newton,	John Webb,	\$300,000
Thomaston,	Dr. C. Rogers,	32,000
Roswell,	G. H. Camp, N. A. Pratt,	100,000
Troup,	Thomas Leslie,	40,000
Augusta,	W. M. D'Antignac,	200,000
Curtwright,	J. Cunningham, G. Moore,	100,000
Bowensville,	John Bowen,	30,000
Planter's,	H. P. Kirkpatrick, J. Hill,	50,000
Flint River,	George Moore,	50,000
Howard,	Harvey Hall, E. T. Taylor,	100,000
Houston,	D. W. Parr,	22,000
Eatonton,	A. D. Gatewood,	75,000
High Shoals,	Isaac Powell,	44,000
Athens,	John S. Linton,	92,000
Alcovey,	Hugh White,	14,000
Milledgeville,	R. G. Nickols,	90,000
Lawrenceville,	J. M. Gordon,	41,000
Macon,	R. Collins, J. A. Nisbet,	
	and S. T. Chapman,	100,000
Savannah Sash,	Charles Van Horn,	10,000

Total Capital

Total Companies 19—Delegates, 25.

On motion of M. D'Antignac, Mr. S. T. Chapman was requested to state the objects of the meeting and the circumstances which led to its call. Mr. C. stated that the original suggestion touching the movement had been made by Mr. Allen Mc Walker of Upson county, since deceased, that Mr. Mc W. had called the attention of Manufacturers to the importance of some greater concert of action, and also to the necessity of establishing some com-

mon depot for the exhibition and sale of their goods. These views had been so fully expressed by Mr. Mc Walker in an article which had appeared in the columns of the *Journal and Messenger* of Macon, that it was deemed unnecessary to do more than refer to them.

After some further conference, on motion of the Rev. N. A. Pratt, it was

Resolved, That a committee of five be appointed to report some general place for a future organization of the convention.

The Committee appointed were Messrs N. A. Pratt of Roswell, Wm. D'Antignac, Augusta, R. J. Nickols, Milledgeville, S. T. Chapman of Macon, and John Cunningham of Curtwright, who were instructed to report to an adjourned meeting at 4, P. M. this day.

August 17th, 4 P. M.

The convention met pursuant to adjournment.—The Committee of five, through Mr. Chapman submitted the following report, which is unanimously adopted:

The Committee to whom was referred the consideration of the propriety of organizing a Manufacturers' Association for the State of Georgia, having given the subject the reflection which their limited time would admit, beg leave to report, that by association and interchange of views and opinions, much good will result to this great and growing interest which now employs nearly three millions of capital, and which is rapidly developing the industry and enterprise of the State. They therefore present to the Convention, the following recommendations:

1. That an Association be immediately formed, to be styled the Manufacturing Association of Georgia.

2. That any company or individual engaged in manufacturing pursuits of any kind whatsoever and paying the sum of five dollars per annum, shall be entitled to all the privileges and immunities of the Association.

3. That a Committee of three be appointed to report a more perfect plan of organization, to an adjourned meeting, to be held at Augusta, on the second Wednesday of October next; and that said Committee be requested to open a correspondence with every Manufacturing Company in the State, urging the importance of being represented in said adjourned Convention.

4. That the said delegates be respectfully requested to present said adjourned Convention a complete history of their respective establishments, embracing all particulars which may properly be laid before the public.

5. That the delegates from the Cotton and Woollen Manufactories, be particularly requested to furnish not only the general history of their respective establishments, but also

The time when they commenced operations;
The quantity of raw material annually consumed;

The number of spindles and looms employed;
The style and quantity of fabric produced;
The number, sex, color and mental and moral condition of the operatives;

And all other statistical information, the publication of which would not be inconsistent with their respective interests.

6. That the Convention proceed at once to the election of a President, and Secretary and Treasurer, to serve for the term of one year, or until their successors be chosen under the more perfect organization contemplated.

Under the third recommendation of the Committee, the following gentlemen were chosen as a Committee of organization and correspondence, viz: W. M. D'Antignac, Henry W. Merrill, and Dr. C. Rogers.

Barrington King, Esq., of Roswell, was unanimously chosen President, and James Hope, of Augusta, Secretary and Treasurer of the Association.

The Convention adjourned.

CURRAN ROGERS, Pres't.

John S. Linton, Sec'y.

The above is an important movement, and will exert a very beneficial influence upon the Manufacturing interest of this State. The various branches of Manufacturing industry have a mutual interest, and by means of the proposed association, the harmonious action of the whole can be secured where these interests are concerned. The experience of one man, or company, is by the above means, imparted to the whole, and a mutual interchange of good offices secured. It will give a new impulse to this already flourishing branch of industry in this State.

Virginia.

We have much pleasure in noticing the appointment of C. O. Sandford, Esq., to the chief engineering of the South Side railroad.

We understand that the Petersburg and Roanoke railroad company, have lately concluded a contract for 2400 tons of Iron, ("Bridge pattern," weighing 51 lbs. per yard, sufficient to relay the balance of this road) with James Dunlop, Esq., of Petersburg—agent for one of the Iron houses in Wales, at the extremely low rates of \$42-00 per ton, duties included, delivered at City Point. Mr. Dunlop we understand guarantees that the Iron shall be of the same quality as the best Iron in use upon the English roads.

Hudson River Railroad.

We have in hand the second annual report of the Directors of this company, made to the stockholders on the 29th ult. The general report of the President of the company is drawn up with singular good taste and perspicuity, and presents in a clear and distinct form its conditions and prospects. The progress of the work has been very much delayed the past month in consequence of the prevailing epidemic among the force employed on the road.—The work is now so far advanced as to ensure the opening of the road for travel to Peekskill by the first of October, and probably to Poughkeepsie by the month of November next, a distance of about 71 miles.

The whole amount expended on account of the road up to Aug. 1, 1849 was \$3,901,794 60. The whole estimated expense of the road to Albany is \$7,865,330; to meet which the company have, as will be seen by the annexed tables resources provided to the amount of \$2,508,797, leaving to be provided the sum of \$1,454,738 40, which is proposed to be raised by a further issue of bonds, which course is considered to be preferable to the issue of additional stock.

The amount received on stock subscriptions is \$30,688 50; on interest account 42,490; from proceeds of bonds sold, \$989,808 31. In reference to the sale of the mortgage bonds the Directors say—

In respect to the sale of the mortgage bonds of the company, the board have the satisfaction to state that in both instances in which proposals were invited, an amount greater than that advertised for has been taken. In February, \$500,000 of bonds were offered, and proposals for \$525,500 were received and accepted. There was a condition, however, imposed by some of the parties who bid for that loan

that they should have a pre-emptive privilege to all future issues, under an arrangement to extend the same privilege for thirty days to all stockholders at that time, during which \$115,500 more was taken up with the like privilege, making the aggregate amount of the first class issue \$641,000. Of this amount, \$611,808 33 had been paid in up to the 1st inst., and on the remainder 5 per cent. had been paid by parties who had stipulated for some delay in the time of payment. On the 21st of June, notice was given of another issue of \$500,000, and tenders were made and accepted for \$629,000, on which \$378,000 have already been paid up.

No bonds have been issued at less than par for those bearing 7 per cent. interest, and 912-3ds per cent. for those bearing 6 per cent. interest, nor has any allowance or advantage been conceded on any, other than one per cent. brokerage or commission, which was publicly offered in the first case to brokers or agents who procured takers.

It will thus be perceived that \$1,270,000 of the \$3,000,000 of bonds specially authorised to be issued by the amendment act of March 10th, 1848, have been sold, and that \$1,730,000 more remain to be issued, which the board have no doubt of realising as the funds may be wanted, as will partially be the case in October.

Provision has been made in the mortgage, which has been executed for issuing an additional \$1,000,000 under it, and the board are satisfied that it will best comport with the interests of the stockholders to make a further issue of bonds, rather than to apply to the Legislature for permission to increase the stock, it being found on examination, that under the peculiar provisions of the original act, and of the amendment of March, 1847, as to the mode of taking subscriptions for stock beyond the \$3,016,500 originally subscribed, and ten per cent. in addition, ("to enable the company to provide for and pay interest on instalments") has terminated, and that the amount of stock cannot hereafter be increased except by the conversion of bonds into stock. This is a fact which the stockholders will do well to bear in mind.

In relation to the cancelling of the contracts made some time since for the purchase of iron, the Directors say—

"An existing agreement with the Trenton Iron Company, for the future supply of 6000 tons of iron, was mentioned in the report of February last, and it was then stated that the company were in negotiation for its modification, which negotiation has terminated in an agreement with that company to pay them in the bonds of this company, the sum of \$51,000 or \$8.50 per ton, and to cancel the contract. Their 150 shares of stock, as originally agreed, to be forfeited, with 10 per cent paid thereon, thus reducing the actual pecuniary loss of the company to \$49,500. The case has been treated with commendable liberality on the part of the Iron Company, and though this is a heavy tax upon the funds, it will, by the cancelling of the contract, and by re-contracting for the same quantity at the present depressed price of the article, (for which measures are in progress to be delivered next year,) make the outlay the means of an actual saving of upwards of \$100,000 by cancelling the contract for receiving the 6000 tons at \$67.50, it being expected that the same will be replaced at less than \$42.50 per ton; if so, it will be found that including this \$49,500 commutation paid, the cost of the whole 18,000 tons, originally estimated by Mr. Jervis at \$75 per ton, will average under \$58 per ton, a less price than many companies, which commenced operations after this did, have paid for this article.

The cost of right of way for this road has been enormous, far exceeding that of any other road in this country. The amount already paid for this item between New York and Poughkeepsie amounts to about \$400,000, equal to about \$5500 per mile, which sum will be largely increased by the purchase of land for depots and station houses in New York and along the line. Above Poughkeepsie the cost of this item will be very much less.

The Directors have adopted the only true economical policy of constructing the road in the most thorough manner, and of doing in the outset what

those having charge of roads are too much inclined to leave to the future, thus often involving a loss of nearly the whole amount expended in a particular piece of work, which in the end is abandoned for a more thorough construction, when a small addition to the original amount expended might have saved the whole amount lost on the imperfect work. In relation to this, we quote the following from the report:—

"It will be seen by Mr. Jervis' last report, that he has raised his estimate for the completion of the work to Albany at \$7,865,330. Expense so far, might have been spared, by sacrificing something in the mode of construction; by raising the grade through the rock cuttings, by extending the pile bridging across the bays, by less attention to drainage—and by a less careful selection of materials for the road-bed;—the expenditure might have been greatly diminished. This, however, would have been a false economy, which has been uniformly rejected. On a road thus perfectly constructed, with a grade practically level, as will be seen by the table of grades—appendix D; and deviating but 6 1/2 per cent. from a straight line, it is manifest that a rate of speed can be attained equal to that on the best roads in other countries. As this will be the best road in this country, so must its police be maintained with unceasing vigilance. With these two elements of high speed and safety combined, there is no question that it can successfully sustain the most powerful competition from the boats. Indeed, from the experience of other railroads on the margin of navigable waters, this question may be considered as already settled.

For a greater part of the year the road must encounter a competition with steamboats navigating a river parallel with it, and admirably adapted to this mode of travelling. The success of the road, therefore, must depend on its capacity for great speed united with the most perfect safety. This can only be secured by the most thorough work in every thing that relates to the road, and it is the only way to avoid the enormous wear and tear inevitable on poorly constructed roads running at high speed. All these matters seem to have been well considered, and no pains appear to have been spared to invest the road with every quality essential to success. In relation to its ability to compete with river transportation, and also as to its business prospects, the Directors say—

The increased cost beyond the original estimates, falls far short of what has been experienced in other similar works, is not more than might be expected in a work of such magnitude, peculiar in its character and will not affect the value of the investment as a good dividend paying stock. When it is considered that the vast trade of the Valley of the Hudson will be entirely at the command of this Road, one-third of every year, and that no inconsiderable portion must be drawn towards it during the remainder, when it will have a large share of the transportation of passengers; that to the large and rapidly growing population in its vicinity it will always prove the readiest means of conveyance, besides being unsurpassed as a thoroughfare of general travel; that at the one extremity it holds the most direct communication with Canada on the North and with the Lakes on the West, while at the other is situated the present commercial centre of the Union, and the future commercial centre of the world; that these advantages must always be enjoyed alone, because there can be no competing road to interfere with it—all calculations of its resources, when in full operation, would probably fall short of the reality.

And if the Albany and Boston road can traverse a distance of two hundred miles to reach the seaboard at an expenditure of over \$13,000,000, with its high grades and sharp curves, on a forced instead of a natural avenue of trade, and can yet yield a dividend of over 7 per cent., how can it be doubted that the Hudson River road only 142 miles long, so far its superior in all these respects, will be able to make a larger return even on a cost greatly exceeding that which is anticipated?

Mr. Jervis' estimate of income presented to you in June, 1848, is again submitted in appendix C.—it is based on a charge of one dollar and a half for the summer (or open river,) fare to Albany. The experience of the present year in the operation of the New York and New Haven railway, satisfies the board that the adoption of the charge of two dollars for first class passengers during the summer will secure the bulk of that portion of the travel; and when it is considered that on the road a charge of \$1.50 is made to New Haven, a distance of 76 miles and of \$1 to Bridgeport (59 miles), and that at those prices, it competes successfully with steamboats running on the Sound to those points, it is a very obvious inference that \$2 to Albany (142 miles = 1 1/4 cents a mile,) and proportionably for way travel, will be found sufficiently reasonable to secure such a portion of this at present enormous and annually increasing travel, as to afford an abundant income on a much larger cost than will be incurred in completing the work to Albany. The charter admits of a charge of two cents a mile during summer, and two and a half cents during the winter, but not more than \$3, through to Albany at any season. On the charge for freight there is no restriction of rate.—During open navigation, \$50,000 from this source has been the estimate of Mr. Jervis, which is now considered much below the probable result.

The Directors feel no misgivings on these points. They think that to Poughkeepsie the net earnings, if not entirely adequate, will go far towards paying the interest on its cost even to that place. It is only however, when it can reach the business from the North and West, that its powers will be fully developed. True policy, therefore requires that it should be carried on to Albany as fast as may be consistent with a judicious view to the finances of the Company.

Indications having been given on the occasion of the late sale of bonds, that contracts might be made in advance for the \$1,730,000 remaining to be issued of the three millions authorized by the act of February, 1848, or for a part thereof, and the holders of the pre-emptive privilege having waived their rights thereto, the Board are now at liberty to negotiate at large for the same, payable in monthly instalments of \$250,000, and, according to their prospects in this respect, will they be regulated in the extent of the contracts they will make for work above Poughkeepsie, but measures will be immediately taken for having the whole line put in a complete state for letting, and the purchase of right of way will be continued with renewed assiduity. But while the Board speak cautiously as to their future action, they see no reason to apprehend that the whole line will not be under contract before the coming winter."

Annexed to the report of the Directors, are the reports of Mr. Jervis, formerly Chief, now consulting Engineer, and of Mr. Young, Chief Engineer of the road. The report of Mr. Jervis gives the progress of the work up to the 17th ult., at which time his successor took charge of it. It gives in detail what we have indicated in more general terms. The route is one of great difficulty, involving an immense amount of expensive rock excavation of side embankments, the crossing of numerous streams and indentations of the Hudson. So much of the work as is exposed to the water and ice, has stood remarkably well, which has tended to allay much apprehension felt for the safety of this part of it.—Great difficulty has been experienced from the soft and yielding nature of the bottoms of many of the small arms of the river, which the road crosses, and into which the embankments have, in many cases, sunk when they were supposed to be completed.—These unforeseen and inevitable accidents have been repaired as fast as possible, and they are not believed to present any insurmountable obstacle to the opening of the road to Poughkeepsie within the time set. The route from this place to Albany is much less difficult than the portion below it.

* Note.—Estimated for last summer at 10,000 passengers per day, including way and through.

The public will learn with regret that Mr. Jervis has been compelled by ill health, to relinquish the laborious duties of Chief Engineer of the road, a post which he has held since the commencement of the work to the great acceptance of those interested in its construction. He still continues a member of the board of direction, and holds the position of consulting engineer, in which the company will still receive the benefit of his great experience and engineering abilities.

Mr. Young has so recently assumed the duties of his office, that his report professes to contain but little information not already appearing in that of Mr. Jervis. He brings to his new position the reputation of a skillful engineer, and of having conducted with distinguished ability the affairs of one of the most successful roads in this State, the Utica and Schenectady railroad, and we think that this company have good cause to congratulate themselves in their fortunate selection of a successor to their late distinguished Chief Engineer.

The following are Mr. Jervis' estimates of the ultimate cost of the road:—

For Grading, Bridging and Superstructure, single track, except the grading from New York to Poughkeepsie, which is for double track..... \$6,365,330

Estimated for right of way, Land Stations and furniture..... 1,000,000

The following expenditures on account of the last item have just been furnished me by one of the officers of the company—namely:

For Right of Way..... 423,183 82

" Depot Land at 31st st. 88,010 00

" " and Way Stations between N. York and Poughkeepsie, including the latter..... 56,246 02

" Buildings in course of construction..... 21,147 25

" Cars and Locomotives paid for or contracted for..... 115,300 00

Estimated as still due for right of way below Poughkeepsie..... 25,000 00

Leaving a balance of..... 728,887 09

to complete this branch of expenditure above Poughkeepsie, with some heavy expenditures for the New York stations yet to be provided for.

I am therefore of the opinion that an addition will be required for these items, and have thought proper to add to the general estimate..... 500,000

Making a total of..... \$7,865,330

Statement of Receipts and Expenditures of the Hudson River Railroad Company, up to the 31st day of July, 1849.

RECEIPTS.

Installments—on 30,165 sh's of stock (being original subscription) received in money..... \$2,857,260

Credited as paid, to make full stock at 517 shares forfeited..... 42,490

For stock—issued at par under amended Act of 20th March, 1847, to meet payment of interest on stock..... 189,100

Amount received on account of Bonds for \$1,270,000 sold..... 989,808 31

Interest.—Amount received on deposits in New York Life Ins. and Trust Co and from other sources..... 42,208 53

Total receipts..... \$4,120,866 85

EXPENDITURES.

Grading—including piling and bridging, road bridging, dock extensions and bridges..... \$2,158,811 45

Superstructure—being amt. paid for rails, chairs, laying track, and expenses connected therewith..... 683,511 07

Stations—cost of land between 30th and 32d sts. and 10th and 11th Avenues..... 88,010

Expended on buildings in course of construction..... 21,147 24

Cost of land at Manhattanville, Peekskill, Poughkeepsie and other places..... 53,007 89

Expenses connected with this department..... 2,338 13

Land for road—New York county 99,237 50

Westchester " 180,392 21

Putnam " 19,950 63

Dutchess " to Poughkeepsie.. 91,616 62

Dutchess co. above Poughkeepsie.. 26,437 23

Expenses of this department, being salaries of agents, and cost of procuring land by assessment..... 31,986 86

Engineering, being salaries of engineers and expenses connected with this department..... 120,550 54

General expenses.—Of commissioners, prior to organization of the co'y... 6,134 27

Of office, salaries of officers and clerks..... 32,621 87

Brokerage paid on bonds sold..... 6,645

Contingent expenses, (being expenses not properly belonging to any of the preceding heads)..... 7,347 25

Paid for cars..... 173,300 93

" machinery for shop..... 1,838 37

Total expenditures in building and furnishing road..... \$3,650,269 39

Interest payments to stockholders..... \$201,035 25

Paid for 80 shares stock, temporarily held..... 8,000

Installments unpaid on 517 shares stock forfeited, and now held by the Co. 42,490

Balance on hand, deposited with New York Life Ins. and Trust Company 219,072 25

Agreeing with receipts as above stated..... \$4,120,866 85

E. E. New York, Aug. 1st, 1849.

JOHN M. HOPKINS, Treasurer.

ESTIMATE OF RESOURCES.

Cash on hand August 1st, 1849..... \$219,072

To be collected on bonds sold for..... \$1,270,000

Less 8½ per cent. on \$110,000 taken at 6 per cent. interest... 6,167

1,260,833

Off amount paid up..... 989,808

(Subject to 8½ per cent. deduction on any more taken at 6 per cent.)

271,025

Installments due on 1973 shares of stock

on which \$80,800 (averaging 41 per cent.) has been paid..... 116,500

Forfeited and other (80 shares) stock held by the Co., 597 shares, cost to the co. \$50,490—estimated at par..... 59,700

Interest stock remaining to be issued, mostly engaged for payments to contractors at par..... 112,500

Mortgage bonds remaining to be issued, 1,730,000

Resources August 1st, 1849..... \$2,508,797

TABLE OF GRADE.

On the Hudson River Railroad, between Thirty-second street in the City of New York and Albany.

Distances.	Inclination per mile.	Ascent.	Descent.	Total ascent & descent.
Miles.	Feet.	Feet.	Feet.	Feet.
100.221	Level.			
9.204	0.271	2.5		2.5
5.993	0.500	3.		3.
1.759	1.136	2.		2.
2.454	2.445	6.		6.
1.	5.	5.		5.
2.250		22.5		
3.007			30.	
2.006	10.	20.		127.5
2.505			25.	
1.503		15.		
1.503			15.	
2.301	13.	30.		30.
2.240	13.160		30.	30.
0.504	15.	7.5		7.5
138.450		113.5	100.	213.5

3.958 Distance from 60th st. to the foot of Canal st. through which the grades are adjusted to the corporation regulations.

142.408 Total distance from Greenbush, Albany, to foot of Canal st., New York.

BOARD OF DIRECTION.

James Boorman, President.

Edward Jones, Vice-President.

OTHER DIRECTORS.

Gardiner G. Howland, Moses H. Grinnell, Gouverneur Kemble, Elisha Peck, Thomas Suffern, Japhet Bishop, John B. Jervis, Edwin D. Morgan, James Hooker, John D. Wolfe,

Erastus Corning, of Albany.

OFFICERS.

George B. Butler, Secretary and Attorney.

John M. Hopkins, Treasurer.

E. Elmendorf, Jr., Assistant Secretary.

ENGINEERS.

John B. Jervis, Consulting.

Wm. C. Young, Chief.

ALBANY AND BUFFALO RAILROADS.

Four Trains daily, Sundays excepted, viz:

Leave Albany, 6 a.m., 9 a.m., 2 p.m., 7 p.m.

Reach Buffalo, 15 hours, 18 hours, 23 hours, 18 hours.

Arrive from Buffalo, 7 p.m., 2½ a.m., 12½ m., 3½ p.m.

Passengers by the Express Train reach Buffalo from New York, and New York from Buffalo, in 24 hours. The Isaac Newton and Oregon connect at Albany with this Train. Baggage cars, with careful baggage masters, run through with all the trains.

For Schenectady, Saratoga Springs & Whitehall, Leave Albany at 7 a.m. and 2 p.m. For Schenectady only at 6, 7 and 9 a.m. and 12½, 2 and 7 p.m. For Erie Canal packets at 7 a.m. and 7 p.m. By Plank Road from Schenectady to Saratoga at all hours by stages, etc.

The Eastern Trains leave Albany at 7 a.m. and 3 p.m. The wagons of the company take baggage free between railroads and steamboats at Albany.

E. FOSTER, Jr., Sec'y Albany and Schenectady Railroad Co. Albany, August, 1849.

Large Wooden Pumps.

SEVERAL Large Wooden Square Pumps, of various sizes from 6 to 24 inches, and lengths from 10 to 25 feet, strongly bolted and strapped together with wrought iron; and used to great advantage on the Boston Water works; also two screw pumps each 25 feet long and 2½ feet in diameter, are now for sale by the Boston Water Commissioners.

For further particulars inquire at No. 119 Washington Street, Boston, or of E. S. CHESBROUGH, West Newton.

June 8, 1849.

**P. S. DEVLAN & CO'S
Patent Lubricating Oil.**

THE Subscribers invite the attention of Railroads, Steamboats, Machinists, etc., to the above article of Oil; they are prepared to supply it in any quantity. Certificates of its superiority over all other oils, from several of the largest Works and Railroads, can be seen at our office.

KENNEDY & GELSTON,

5½ Pine street, New York,

Sole Agents for the New England States and State of New York. 1y14

Steam Boiler Explosions.

THE Subscriber having been appointed sole Agent for Faber's Magnetic Water Gauge, is now ready to supply the trade, and also individuals with this celebrated instrument. Besides the greatest safety from explosion resulting from its use, it is a thorough check against careless stoking and feeding. In marine engines it will regulate the exact quantity required in the "blow off." Pamphlets containing full information, can be had free on application to the Agent,

JOSEPH P. PIRSSON,
Civil Engineer, 5 Wall st.

**Journal of the Franklin Institute
of the State of Pennsylvania,
for the Promotion of the
Mechanic Arts.**

The oldest Mechanical Periodical extant in America, is published on the first of each month in the City of Philadelphia. It has been regularly issued for upwards of twenty-three years, and is carefully edited by a committee of scientific gentlemen appointed for the purpose, by the Franklin Institute.

The deservedly high reputation, both at home and abroad, which this Journal has acquired and sustained, has given it a circulation and exchange list of the best character, which enables the Committee on Publications to make the best selection from foreign Journals and to give circulation to original communications on mechanical and scientific subjects, and notices of new inventions; notices of all the Patents issued at the Patent Office, Washington City, are published in the Journal, together with a large amount of information on Mechanics, Chemistry, and Civil Engineering, derived from the latest and best authorities.

This Journal is published on the first of each month, each number containing at least seventy-two pages, and forms two volumes annually of about 432 pages each, illustrated with engravings on copper and on wood of those subjects which require them.

The subscription price is Five Dollars per annum, payable on the completion of the sixth number; and it will be forwarded free of postage when five dollars are remitted to the Actuary (postage paid) in advance for one year's subscription.

Communications and letters on business must be directed to "the Actuary of the Franklin Institute, Philadelphia, Pennsylvania," the postage paid.

WILLIAM HAMILTON,
Actuary, F. I.

**Engine and Car Works,
PORTLAND, MAINE.**

THE PORTLAND COMPANY, Incorporated August 8th, 1846, with a capital of \$250,000, have erected their extensive Works upon the deep water of Portland Harbor, and receive and transport, to and from their works direct, to and from vessels of any class.

They now manufacture to order, and deliver upon the Railroads running in each direction from the city, or on shipboard as wanted, Locomotive, Stationary, or Steam Boat Engines; Passenger, Mail, Freight, Earth and Hand Cars; Railway Frogs, Switches, Chairs and Castings; and every other description of Machinery.

HORACE FELTON,
Superintendent.

JAMES C. CHURCHILL,
General Agent and Clerk.

The New York Iron Bridge Co.

LATELY KNOWN AS

Rider's Patent Iron Bridge Co.

THE Company which has hitherto furnished these Bridges, under the patent granted to the late Nathaniel Rider, deceased, have become satisfied that all the principles embraced in their construction, are included in a previous patent, granted in the year 1839, to Col. Stephen H. Long, of U. S. Engineers, and by him designated as "Long's Suspension Bridges," and have therefore made an arrangement with Col. Long, by which they have secured the exclusive right to make and vend these Bridges throughout the whole United States.

The only change consequent upon the new arrangement will be found in the name and style of the Company. The parties composing it being the same, the construction of the Bridges will be essentially the same. August 4th, 1849. M. M. White, Agent, au7tf No. 74 Broadway, New York.

NOTICE TO**Superintendents of Railroads.**

TYLER'S PATENT SAFETY SWITCH.—The undersigned would respectfully call their attention to his Patent Safety Switch, which from long trial and late severe tests has proved itself perfectly reliable for the purpose for which it was intended. It is designed to prevent the train from running off when the switch is set to the wrong track by design or accident. The single rail or gate switch is established as the best and safest switch for the ordinary purpose of shifting cars from one track to another, but it is liable to the serious evil of having one track open or broken when connected with the other. My improvement entirely removes this evil, and while it accomplishes this important office, leaves the switch in its original simplicity and perfection of a plain unbroken rail, connecting one track with the other ready for use.

The following decision of the Commissioner of Patents is respectfully submitted to Railroad Engineers, Superintendents, and all others interested in the subject.

(COPY.)

UNITED STATES PATENT OFFICE, }

Washington City, D.C., April 28th, 1846. }

Sir: You are hereby informed that in the case of the interference between your claims and those of Gustavus A. Nicolls, for improvements in safety switches—upon which a hearing was appointed to take place on the 3d Monday in March, 1846, the question of priority of invention has been decided in your favor. Inclosed is a copy of the decision. The testimony in the case is now open to the inspection of those concerned.

Yours respectfully, EDMUND BURKE,
Commissioner of Patents.

To Philo B. Tyler.

Any further information may be obtained by addressing P. B. TYLER, Springfield, Mass., or JOHN PENDLETON, Agent, 149 Hudson St., New York. 34tf

Railroad Lanterns.

COPPER and Iron Lanterns for Railroad Engines, fitted with heavy silver plated Parabolic Reflectors of the most approved construction, and Solar Argand Lamps; manufactured by

HENRY N. HOOPER & CO.,

No. 24 Commercial St. Boston.

August, 16, 1849.

6m33

To Contractors.

BLUE Ridge railroad.—Proposals will be received by the undersigned at his Office in Brooksville, Albermarle county, Va., until the 1st of October next, for the construction of the tunnel through the Blue Ridge, together with the deep cut and embankment connected therewith at each end.

The tunnel will be 4,260 feet long, 16 feet wide and 20 feet high, with a ditch on each side: it will slope eastwardly at the rate of 66 ft. to the mile, and pass 700 feet below the top of the mountain.

Proposals will be received either for the whole or for one-half, it being distinctly stated, in this case, whether the Eastern or Western half is bid for.

Proposers are requested to examine the localities before bidding, and will obtain from the undersigned all necessary information.

The payments will be CASH, with a suitable reservation till the completion of the contract. The best testimonials and an energetic prosecution of the work will be expected.

Printed forms of proposals will be furnished on application to the undersigned.

By order of the President and Directors,
C. CROZET,

Engineer Blue Ridge Railroad.

Brooksville, July 26, 1849,

Notice to Contractors.

OHIO AND PENNSYLVANIA RAILROAD. PROPOSALS will be received at the office of the Ohio and Pennsylvania Railroad Company, in the town of Massillon, Stark county, Ohio, until sunset of Friday, the 28th of September, 1849, for the Grading and Masonry of the line between Canton and Wooster, a distance of about 32 miles. Proposals may be addressed to Wm. Robinson, Jr., President, or Solomon W. Roberts, Chief Engineer of the company.

Drawings and specifications of the work to be let will be exhibited at the office in Massillon, for a week before the letting, by Jesse R. Straghan, the Resident Engineer of the Western Division.

By order of the Board of Directors.

WM. ROBINSON, Jr., President.

Pittsburg, August 11, 1849.

To Railroad Companies.

FOR SALE—A Second-hand Locomotive Engine and Tender, of about 10 tons weight, in good order, and warranted to perform well. Any company wanting a cheap engine for a passenger or light burden train, will rarely meet with an opportunity so favorable as the present. The engine and tender are in perfect running order, and will be tested to the satisfaction of any one wishing to purchase. Price \$1,500.

Address J. B. MOORHEAD,

Frazer P.O., Chester county, Pa.

P.S.—The Engine can be seen by calling on H. Osmond & Co., Car-builders, Broad st., Philadelphia. September 6, 1849.

Patents for Inventions.

THE Subscriber offers his services for the procurement of Patents in the UNITED STATES; in the CANADAS and other British Colonial possessions; in the SPANISH, FRENCH and other WEST INDIES.

ALSO IN EUROPE.

ENGLAND WITH COLONIES; SCOTLAND and IRELAND. FRANCE, BELGIUM HOLLAND, etc.

The foreign patents are procured through special agents, established by, and solely responsible to this establishment. At this office may be obtained all documents required in patent business; Deeds, Conveyances, Agreements, Assignments, etc. Counsel given on questions involving points of law in Contested Cases, and written opinions, on the title claims, etc., where the validity of a Patent is questioned.

MECHANICAL ENGINEERING DEPARTMENT.

Drawings of all kinds furnished to parties who wish to prosecute their own patent business. Accurate working drawings for Pattern Makers or for making Contracts with Manufacturers; calculations and drawings made, for constructing difficult and complicated machines or parts of machines. Draughtsmen furnished to take Drawings of Mills, Mill Sites, and Machinery, in any part of the country.

Pamphlets, containing full information on the above subjects, furnished gratis.

JOSEPH P. PIRSSON, Civil Engineer,
Office, No. 5 Wall St.

ENGINEERS.**Arrowsmith, A. T.,**

Buckfield Branch Railroad, Buckfield, Me.

Baneks, C. W.,

Engineer's Office, Southern Railroad, Jackson, Miss.

Berrien, John M.,

Michigan Central Railroad, Marshall, Mich.

Buckland, George,

Troy and Greenbush Railroad.

Clement, Wm. H.,

Little Miami Railroad, Cincinnati, Ohio.

Davidson, M. O.,

Eckhart Mines, Alleghany Co., Maryland.

Fisk, Charles B.,

Cumberland and Ohio Canal, Washington, D. C.

Felton, S. M.,

Fitchburgh Railroad, Boston, Mass.

Floyd-Jones, Charles,

South Oyster Bay, L. I.

Gzowski, Mr.,

St. Lawrence & Atlantic Railroad, Montreal, Canada.

Gilbert, Wm. B.,

Rutland and Burlington Railroad, Rutland, Vt.

Grant, James H.,

Nashville and Chattanooga R. R., Nashville, Tenn.

Harry, P.,

Binghamton, New York.

Holcomb, F. P.

Southwestern Railroad, Macon, Ga.

Higgins, B.

Mansfield and Sandusky Railroad, Sandusky City, O.

Johnson, Edwin F.

New York and Boston Railroad, Middletown Ct.

Latrobe, B. H.,

Baltimore and Ohio Railroad, Baltimore, Md.

Miller, J. F.,

Worcester and Nashua Railroad, Worcester, Mass.

Morton, A. C.,

Atlantic and St. Lawrence Railroad, Portland, Me.

McRae, John,

South Carolina Railroad, Charleston, S. C.

Nott, Samuel,

Lawrence and Manchester Railroad, Boston,

Reynolds, L. O.,

Central Railroad, Savannah, Ga.

Roberts, Solomon W.,

Ohio and Pennsylvania Railroad, Pittsburgh, Pa.

Robinson, James P.,

Androscoggin & Kennebec Railroad, Waterville, Me.

Schlatter, Charles L.,

Northern Railroad (Ogdensburg), Malone, N. Y.

Stark, George.,

Bost., Con. and Mont. R. R., Meredith Bridge, N. H.

Steele, J. Dutton,

Pottstown, Pa.

Trimble, Isaac R.,

Philad., Wil. & Baltimore Railroad, Wilmington, Del.

Tinkham, A. W.,

United States Fort, Bucksport, Me.

Thomson, J. Edgar.,

Pennsylvania (Central) Railroad, Philadelphia.

Whipple, S.,

Civil Engineer and Bridge Builder, Utica, N. Y.

Williams, E. P.,

Auburn and Schenectady Railroad, Auburn, N. Y.

Williams, Charles H.,

Milwaukee, Wisconsin.

BUSINESS CARDS.

Dudley B. Fuller & Co.,
IRON COMMISSION MERCHANTS,
No. 139 GREENWICH STREET,
NEW YORK.

Cruse & Burke,

Civil Engineers, Architects and Surveyors,
Office, New York State Institution of Civil Engineers,
STATE HALL, ALBANY., N. Y.

Drawings, specifications and surveys accurately executed. Pupils instructed theoretically and practically at a moderate premium.
May 26, 1849.

Eaton, Gilbert & Co.,

Railroad Car, Coach and Omnibus Builders,
TROY, N. Y.

Hudson River Foundry,
THOMAS & COLLINS,
130 Quay Street, Albany.

To Railroad & Navigation Cos.

Mr. M. Butt Hewson, Civil Engineer, offers his services to Companies about to carry out the surveys or works of a line of Navigation or Railroad. He can give satisfactory references in New York City as to his professional qualifications; and will therefore merely refer here to the fact of his having been engaged for upwards of two years conducting important Public Works for the British Government.
Communications will find Mr. Hewson at the office of the Railroad Journal, 54 Wall Street, New York.

J. T. Hodge,

Eagle River P. O. Lake Superior.

James Laurie, Civil Engineer,

No. 23 RAILROAD EXCHANGE, BOSTON, MASS.

Railroad Routes explored and surveyed. Estimates. Plans and Specifications furnished for Dams, Bridges, Wharves, and all Engineering Structures.
October 14, 1848. 6m*

James Herron, Civil Engineer,

OF THE UNITED STATES NAVY YARD,

PENSACOLA, FLORIDA.,

PATENTEE OF THE

HERRON RAILWAY TRACK.

Models of this Track, on the most improved plans, may be seen at the Engineer's office of the New York and Erie Railroad.

To Railroad Companies.

—WROUGHT IRON WHEELS—
SAFETY AND ECONOMY.

NORRIS' LOCOMOTIVE WORKS, SCHENECTADY, NEW YORK,

Are Manufacturing Wrought Iron Driving, Truck, Tender, and Car Wheels—made from the best American Iron. Address E. S. NORRIS.

May 16, 1849.

Manning & Lee,

GENERAL COMMISSION MERCHANTS,

NO. 51 EXCHANGE PLACE,

BALTIMORE.

Agents for Avalon Railroad Iron and Nail Works. Maryland Mining Company's Cumberland Coal 'CED'—'Potomac' and other good brands of Pig Iron.

Samuel Kimber & Co., COMMISSION MERCHANTS

WILLOW ST. WHARVES, PHILADELPHIA.

AGENTS for the sale of Charcoal and Anthracite Pig Iron, Hammered Railroad Car and Locomotive Axles, Force Pumps of the most approved construction for Railroad Water Stations and Hydraulic Rams, etc., etc.
July, 27, 1849.

IRON.**Railroad Iron.**

THE SUBSCRIBERS ARE PREPARED TO take orders for Railroad Iron to be made at their Phoenix Iron Works, situated on the Schuylkill River, near this city, and at their Safe Harbor Iron Works, situated in Lancaster County, on the Susquehanna river; which two establishments are now turning out upwards of 1800 tons of finished rails per month.

Companies desirous of contracting will be promptly supplied with rails of any required pattern, and of the very best quality.

REEVES, BUCK & CO.,

45 North Water St., Philadelphia.

March 15, 1849.

To the Proprietors of Rolling Mills and Iron Works.

THE Undersigned—Proprietors of Townsend's Furnace and Machine Shop, Albany—are extensively engaged in the manufacture of Machinery and fixtures for Iron, and Copper Rolling Mills, and Iron Works. Having paid particular attention to the manufacture of *Rolls* (Rollers), both *chilled* and *dry-sand*, they feel confident that they can execute orders for such castings in a satisfactory manner. And to give assurance of this, they beg leave to refer to the following named persons, proprietors and managers of some of the most extensive rolling mills in the country, viz: Jno. F. Winslow, J. Tuckerman, H. Burden, W. Burt, J. & J. Rogers, Saltus & Co., J. B. Bailey, L. G. B. Cannon, Hawkins & Atwater, etc., etc.

FRANKLIN TOWNSEND & CO.

Albany, August 18, 1849.

Railroad Iron.

THE Undersigned offer for sale 3000 Tons Railroad Iron at a fixed price, to be made of any required ordinary section, and of approved stamp.

They are generally prepared to contract for the delivery of Railroad Iron, Pig, Bar and Sheet Iron—or to take orders for the same—all of favorite brands, and on the usual terms.

ILLIUS & MAKIN.

41 Broad street.

March 29, 1849.

3m.13

PATENT HAMMERED RAILROAD, SHIP & BOAT SPIKES.—The Albany Iron Works have always on hand, of their own manufacture, a large assortment of Railroad, Ship and Boat Spikes from 2 to 12 inches in length, and of any form of head. From the excellence of the material always used in their manufacture, and their very general use for railroads and other purposes in this country, the manufacturers have no hesitation in warranting them fully equal to the best spikes in market, both as to quality and appearance. All orders addressed to the subscribers at the works will be promptly executed.

JOHN F. WINSLOW, Agent.

Albany Iron and Nail Works, Troy, N. Y.

The above Spikes may be had at the following prices, of Erastus Corning & Co Albany; Meritt & Co., New York; E. Pratt & Bro't et, Eastimera, Md.

LAP—WELDED WROUGHT IRON TUBES

FOR

TUBULAR BOILERS,

FROM 1 1/2 TO 8 INCHES DIAMETER.

These are the ONLY Tubes of the same quality and manufacture as those so extensively used in England, Scotland, France and Germany, for Locomotive, Marine and other Steam Engine Boilers.

THOMAS PROSSER,

Patentee.

28 Platt street, New York.

Railroad Iron.

THE UNDERSIGNED ARE PREPARED TO contract for the delivery of English Railroad Iron of favorite brands, during the Spring. They also receive orders for the importation of Pig, Bar, Sheet, etc. Iron.

THOMAS B. SANDS & CO.,

22 South William street,

February 3, 1849.

New York.

Iron Store.

THE Subscribers, having the selling agency of the following named Rolling Mills, viz: Norristown, Rough and Ready, Kensington, Triadelphia, Pottsgrove and Thorndale, can supply Railroad Companies, Merchants and others, at the wholesale mill prices for bars of all sizes, sheets cut to order as large as 58 in. diameter; Railroad Iron, domestic and foreign; Locomotive tire welded to given size; Chairs and Spikes; Iron for shafting, locomotive and general machinery purposes; Cast, Shear, Blister and Spring Steel; Boiler rivets; Copper; Pig iron, etc., etc.

MORRIS, JONES & CO.,

Iron Merchants,

Schuylkill 7th and Market Sts., Philadelphia.

August 16, 1849.

ly33

THE NEW JERSEY IRON CO'S WORKS AT Boonton, are now in full operation, and can execute orders for Railroad Bars of any required pattern, equal in quality to any made in this country. Apply to

J. F. MACKIE,

Nos. 85 and 87 Broad St.

New York, June 8, 1849.

Railroad Iron.

OF approved T patterns, weighing 56 to 60 lbs. per lineal yard, made by the best English manufacturers, and under our own specification and inspection. In store and to arrive. For sale by

DAVIS, BROOKS, & CO.,

68 Broad street.

New York, June 1, 1849.

The above will favorably compare with any other rails.

Railroad Iron, Pig Iron, &c.

600 Tons of T Rail 60 lbs. per yard.

25 Tons of 2 1/2 by 4 Flat Bars.

25 Tons of 2 1/2 by 9-16 Flat Bars.

100 Tons No. 1 Gartscherie.

100 Tons Welsh Forge Pigs.

For Sale by A. & G. RALSTON & CO.

No. 4 So. Front St., Philadelphia

Monument Foundry.

A. & W. DENMEAD & SON,
Corner of North and Monument Sts.,—Baltimore,
HAVING THEIR

IRON FOUNDRY AND MACHINE SHOP

In complete operation, are prepared to execute faithfully and promptly, orders for Locomotive or Stationary Steam Engines, Woolen, Cotton, Flour, Rice, Sugar Grist, or Saw Mills, Slide, Hand or Chuck Lathes, Machinery for cutting all kinds of Gearing, Hydraulic, Tobacco and other Presses, Car and Locomotive patent Ring Wheels, warranted, Bridge and Mill Castings of every description, Gas and Water Pipes of all sizes, warranted, Railroad Wheels with best faggotted axle, furnished and fitted up for use, complete

Being provided with Heavy Lathes for Boring and Turning Screws, Cylinders, etc., we can furnish them of any pitch, length or pattern.

Old Machinery Renewed or Repaired—and Estimates for Work in any part of the United States furnished at short notice.
June 8, 1849.

Railroad Iron.

THE TRENTON IRON COMPANY ARE NOW turning out one thousand tons of rails per month, at their works at Trenton, N. J. They are prepared to enter into contract to furnish rails of any pattern, and of the very best quality, made exclusively from the famous Andover iron. The position of the works on the Delaware river, the Delaware and Raritan canal, and the Camden and Amboy railroad, enables them to ship rails at all seasons of the year. Apply to

COOPER & HEWITT, Agents.
17 Burling Slip, New York.

October 30, 1848.

American Cast Steel.

THE ADIRONDAC STEEL MANUFACTURING CO. is now producing, from American iron, at their works at Jersey City, N. J., Cast Steel of extraordinary quality, and is prepared to supply orders for the same at prices below that of the imported article of like quality. Consumers will find it to their interest to give this a trial. Orders for all sizes of hammered cast steel, directed as above, will meet with prompt attention.
May 28, 1849.

SPRING STEEL FOR LOCOMOTIVES, TENDERS AND CARS.—The subscriber is engaged in manufacturing spring steel from 1½ to 6 inches in width, and of any thickness required: large quantities are yearly furnished for railroad purposes, and wherever used its quality has been approved of. The establishment being large, can execute orders with great promptitude, at reasonable prices, and the quality warranted. Address **J. F. WINSLOW, Agent,** Albany Iron and Nail Works.

Pig and Bloom Iron.

THE Subscribers are Agents for the sale of numerous brands of Charcoal and Anthracite Pig Iron, suitable for Machinery, Railroad Wheels, Chains, Hollowware, etc. Also several brands of the best Puddling Iron, Juniata Blooms suitable for Wire, Boiler Plate, Axe Iron, Shovels, etc. The attention of those engaged in the manufacture of Iron is solicited by
A. WRIGHT & NEPHEW,
Vine Street Wharf, Philadelphia.

Railroad Iron.

RAILROAD IRON & LOCOMOTIVE TIRES
Imported to order, and constantly on hand, by
A. & G. RALSTON,
4 South Front St., Philadelphia.

Railroad Iron.

THE MOUNT SAVAGE IRON WORKS, Alleghany county, Maryland, having recently passed into the hands of new proprietors, are now prepared, with increased facilities, to execute orders for any of the various patterns of Railroad Iron. Communications addressed to either of the subscribers will have prompt attention. **J. F. WINSLOW, President**
Troy, N. Y.

ERASTUS CORNING, Albany.
WARREN DELANO, Jr., N. Y.
JOHN M. FORBES, Boston.
ENOCH PRATT, Baltimore, Md.

November 6, 1849.

WILLIAM JESSOP & SONS' CELEBRATED CAST-STEEL.

The subscribers have on hand, and are constantly receiving from their manufactory

PARK WORKS, SHEFFIELD,
Double Refined Cast Steel—square, flat and octagon.
Best warranted Cast Steel—square, flat and octagon.
Best double and single Shear Steel—warranted.
Machinery Steel—round.

Best and 2d gy. Sheet Steel—for saws and other purposes.

German Steel—flat and square, "W. I. & S." "Eagle" and "Goat" stamps.

Genuine "Sykes," L Blister Steel.
Best English Blister Steel, etc., etc., etc.

All of which are offered for sale on the most favorable terms by
WM. JESSOP & SONS,
91 John street, New York.

Also by their Agents—
Curtis & Hand, 47 Commerce street, Philadelphia.
Alex'r Fullerton & Co., 119 Milk street, Boston.
Stickney & Beatty, South Charles street, Baltimore.

May 6, 1848.

Railroad Iron.

100 Tons 2½ x ½, 30 Tons Railroad.
All fit to re-lay. For sale cheap by
PETTEE & MANN,
228 South St., New York.

May 16, 1849.

MANUFACTURE OF PATENT WIRE ROPE

and Cables for Inclined Planes, Standing Ship Rigging, Mines, Cranes, Tillers, etc., by

JOHN A. ROEBLING, Civil Engineer,
Pittsburgh, Pa.

These Ropes are now in successful operation on the planes of the Portage railroad in Pennsylvania, on the Public Slips, on Ferries, and in Mines. The first rope put upon Plane No. 3, Portage railroad, has now run four seasons, and is still in good condition.

Iron.

THE SUBSCRIBERS having resumed the agency of the New-Jersey Iron Company, are prepared to execute orders for the different kinds and sizes of Iron usually made at the works of the company, and offer for sale on advantageous terms.—

150 tons No. 1 Boonton Foundry Pig Iron.
100 " No. 2 do. do. do.
300 " Nos. 2 & 3 Forge do. do.
100 " No. 2 Glendon do. do.
140 " Nos. 2 & 3 Lehigh Crane do. do.
100 " No. 1 Pompton Charcoal do.
100 " New-Jersey Blooms
50 " New-Jersey Faggoting Iron, for shafts

Best Bars, ½ to 4 inch by ½ to 1 inch thick.
Do do Rounds and Squares, ½ to 3 inch.

Rounds and Squares, 3-16 to 1 inch.
Half Rounds, ½ to 1 in. Ovals & Half Ovals ½ to 1½ in.

Bands, 1½ to 4 inch. Hoops, ½ to 2 inch.
Trunk Hoops, ½ to 1½ in. Horse Shoe & Nut Iron.

DUDLEY B. FULLER & Co., 139 Greenwich-st. and 85 Broad-st.

American Pig, Bloom and Boiler Iron.

HENRY THOMPSON & SON,
No 57 South Gay St., Baltimore, Md.

Offer for sale, *Hot Blast Charcoal Pig Iron* made at the *Catoctin* (Maryland), and *Taylor* (Virginia), *Furnaces*; *Cold Blast Charcoal Pig Iron* from the *Cloverdale* and *Catawba*, Va., *Furnaces*, suitable for *Wheels* or *Machinery* requiring *extra strength*; also *Boiler* and *Flue Iron* from the mills of *Edge & Hilles* in Delaware, and *best quality Boiler Blooms* made from *Cold Blast Pig Iron* at the *Shenandoah Works*, Va. The productions of the above establishments can always be had at the lowest market prices for approved paper.

American Pig Iron of other brands, and *Rolled* and *Hammered Bar Iron* furnished at lowest prices. Agents for *Watson's Perth Amboy Fire Bricks*, and *Rich & Cos. New York Salamander Iron Chests.*
Baltimore, June 14, 1849. 6 mos

Iron Wire.

REFINED IRON WIRE OF ALL KINDS,
Card, Reed, Cotton-flyer, Annealed, Broom, Buckle, and Spring Wire. Also all kinds of Round, Flat or Oval Wire, best adapted to various machine purposes, annealed and tempered, straightened and cut any length, manufactured and sold by
ICHABOD WASHBURN.

Worcester, Mass., May 25, 1849.

American and Foreign Iron.

FOR SALE,
300 Tons A 1, Iron Dale Foundry Iron.

100 " 1, " " "

100 " 2, " " "

100 " " Forge " "

400 " Wilkesbarre " "

100 " "Roaring Run" Foundry Iron.

300 " Fort " "

50 " Catoctin " "

250 " Chikiswalungo " "

50 " "Columbia" "chilling" iron, a very superior article for car wheels.

75 " "Columbia" refined boiler blooms.

30 " 1 x ½ Slit iron.

50 " Best Penna. boiler iron.

50 " "Puddled" " "

50 " Bagnall & Sons refined bar iron.

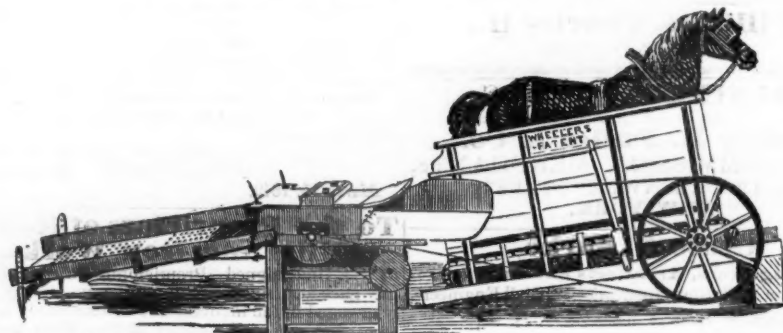
50 " Common bar iron.

Locomotive and other boiler iron furnished to order.
GOODHUE & CO.,
64 South street.

New York.

Roman Cement,

OF the best quality, now landing from ship *Hendrick* Hudson, from London, made by *Billingsley, Mial & Co.*, and superior to anything of the kind manufactured in England. For sale by **G. T. SNOW,**
109 Water Street, New York.

Railroad Horse Power and Saw Mill.

The above cut represents the most simply constructed Endless Railway Power in use. As shown it is attached to a threshing machine, with which it is most extensively used; but for sawing wood at railroad stations it has no superior. The saw mill which accompanies it is simple, cheap and convenient. The single power by the weight of the horse at the elevation of one and a half inches to the foot—the horse weighing eleven hundred pounds—is capable, with the attention of at most three men, of sawing twice in two from 12 to 20 cords of four foot wood per day. They have been used several years on several roads in New England, and for manufacturing establishments more than three thousand of these powers are in use, and without exception have given universal satisfaction. Their principal advantage is, their great simplicity: the full speed being obtained with simple rack and pinion, without intermediate gearing. They are warranted to give satisfaction as above described, or may be returned at my expense, and the purchase money refunded.

HORACE L. EMERY,

Nos. 469 & 371 Broadway, Albany, N. Y.

September 6, 1849.

Iron Safes.

FIRE and Thief-proof Iron Safes, for Merchants, Banks and Jewelers use. The subscriber manufactures and has constantly on hand, a large assortment of Iron Safes, of the most approved construction, which he offers at much lower rates than any other manufacturer. These Safes are made of the strongest materials, in the best manner, and warranted entirely fire proof and free from dampness. Western merchants and the public generally are invited to call and examine them at the store of E. Corning & Co., sole agents, John Townsend, Esq., or at the manufactory.

Each safe furnished with a thief-detector lock, of the best construction. Other makers' Safes repaired, and new Keys and Locks furnished at the shortest notice.

H. W. COVERT,

cor. Steuben and Water sts. Albany.

August 24, 1848.

TO RAILROAD COMPANIES AND MANUFACTURERS of Railroad Machinery. The subscribers have for sale American and English Bar Iron, of all sizes; English Blister, Cast, Shear and Spring Steel; Juniata Rods; Car Axles, made of double refined iron; Sheet and Boiler Iron, cut to pattern; Tires for Locomotive Engines, and other railroad carriage wheels, made from common and double refined B. O. Iron; the latter a very superior article. The Tires are made by Messrs. Baldwin and Whitney, Locomotive Engine Manufacturers of this city. Orders addressed to them, or to us, will be promptly executed. When the exact diameter of the wheel is stated in the order, a fit to those wheels is guaranteed, saving to the purchaser the expense of turning them out inside.

THOMAS & EDMUND GEORGE,
a45 N. E. cor. 12th and Market sts., Philad., Pa.

To Railroad Companies and Contractors.

FOR SALE.—Two Locomotive Engines and Tenders, at present in use on the Beaver Meadow Railroad, being too light for their coal trains, but well calculated for either gravel or light passenger trains.

They weigh, in running order, about 8 tons each—having one pair of driving wheels 4 feet diameter, 4 truck wheels 30 inches diameter, with cylinders 10 in. diameter, and 18 inches stroke of piston. Tenders on 4 wheels. Address JAMES ROWLAND,

Prest. Beaver Meadow Railroad & Coal Co., Philadelphia.

or, L. CHAMBERLAIN, Sec'y,
at Beaver Meadow, Pa.

May 19, 1849.

India-rubber for Railroad Cos.

RUBBER SPRINGS—*Bearing and Buffer*—Fuller's Patent—Hose from 1 to 12 inches diameter. Suction Hose. Steam Packing—from 1-16 to 2 in. thick. Rubber and Gutta Percha Bands. These articles are all warranted to give satisfaction, made under Tyer & Helm's patent, issued January, 1849.—No lead used in the composition. Will stand much higher heat than that called "Goodyear's," and is in all respects better than any in use. Proprietors of railroads do not be overcharged by pretenders.

HORACE H. DAY,

Warehouse 23 Courtlandt street.

New York, May 21, 1849.

NICOLL'S PATENT SAFETY SWITCH FOR Railroad Turnouts. This invention for some time in successful operation on one of the principal railroads in the country, effectually prevents engines and their trains from running off the track at a switch, left wrong by accident or design. It acts independently of the main track rails; being laid down or removed without cutting or displacing them.

It is never touched by passing trains, except when in use, preventing their running off the track. It is simple in its construction and operation, requiring only two castings and two rails; the latter, even if much worn or used, not objectionable.

Working models of the Safety Switch may be seen at Messrs. Davenport, Bridges & Kirk's Cambridge Port, Mass., and at the office of the Railroad Journal, New York.

Plans, Specifications, and all information obtained, on application to the Subscriber, Inventor and Patentee.

G. A. NICOLLS,

Reading, Pa.

Large Pumps.

THE Boston Water Commissioners offer for sale a large number and variety of Wooden Square Pumps, used in clearing excavations from water during the construction of the Aqueducts.

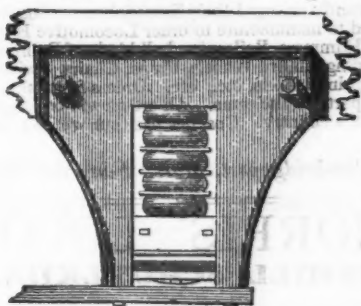
Also Two Large Screw Pumps, each 25 feet long and 2½ feet in diameter.

For further particulars, enquire at the office of the Water Commissioners, 119 Washington St., Boston, or of E. S. Chesbrough, West Newton.

May 19, 1849.

6w20

Patent India-rubber Springs.



FULLER & CO. beg that parties interested in the use of these Springs will not be misled by expensive statements, but will examine the actual Patents and judge for themselves.

The statements made by Messrs. Crane & Ray shall be treated seriatim.

They claim to have first introduced India-rubber Springs about two years since, whereas they were used by Fuller & Co. nearly four years ago.

They claim the exclusive right to use Springs. They have no right whatever; every spring they make is an infringement upon Fuller's patent, dated 1845. They claim the sole right to make India rubber, and apparently think because a species of India-rubber was patented some years since, that no person can make any other now. A patent was granted in January last to Messrs. Tyer & Helm for a new and improved kind of Vulcanized rubber which is used by Fuller & Co.

Fuller's springs it is needless to say are in very general use, although Messrs. Crane & Ray pretend that they know of only one or two instances. Fuller & Co. guarantee all parties who use their springs.

As to the Legal proceedings—an action has been commenced against one company for an alleged infringement of Goodyear's patent, but is being defended with every prospect of success. An action has also been commenced by Fuller & Co., against parties for an infringement of Fuller's patent, and this will be done in every case of violation.

In every case in which Fuller's spring has been applied, it has been pronounced superior to that made by Mr. Ray, and this fact induces Messrs. Crane & Ray to claim the right of using it. They attempt to lead the public from the real question at issue, by producing a Deposition as to Mr. Ray having tried to make a spring which Mr. Fuller did make and patent. If Mr. Ray did invent a spring in 1844, why did he not apply for a patent, and not wait until 1848, when his application was rejected!

Mr. Knevitt has never stated that the springs were put on by him, which are referred to in Mr. Hale's article, but he does state that those springs are made according to Mr. Fuller's specification, and consequently are an infringement upon it. The article of Mr. Hale in the Boston Advertiser, quoted by Messrs. Crane & Ray, was followed immediately by a letter in the same paper, from Mr. Knevitt, setting forth the facts of the case.

The springs referred to were put on by Mr. Ray before Mr. Knevitt came to the United States; when he arrived he gave Mr. Ray notice not to proceed further in making or vending such springs; Mr. Ray then said he did not wish to infringe, and would not continue to do so, and he then contrived an India-rubber and Air spring which totally failed.

In the selection of their first agent, Fuller & Co. were particularly unfortunate, and their reason for advertising to it is simply that it may tend to throw light on subsequent transactions, and furnish a reply to the remark, "that this opposition was invited by their own delay in getting the thing to work." The individual referred to undertook the agency for Fuller's springs, and left Liverpool on the 1st January, 1847, furnished with a complete set of drawings, models, etc., and every necessary instruction to make arrangements respecting the supply of material, and to have it at work within the time limited by law; but from that hour to the present, not a single communication has been received from the said agent. Some of their models,

however, they have traced into the hands of parties now seeking to invade their rights, and by whom they understand they have been exhibited as specimens of their own invention.

The superiority of Fuller's spring is implied in the offer of the New England Car Co. to make springs upon his principle (now that a preference is given to the disc and plate form) and this notwithstanding the fact, that Fuller & Co. have a patent, and that Mr. Ray's application for one was rejected. The public can judge which company's course has been the most honorable, or whose statements are entitled to consideration.

Fuller's springs can be obtained of Mr. Knevitt the Agent, at 38 Broadway New York, and of Messrs. James Lee & Co., 18 India Wharf, Boston. May 26, 1849.

C. W. Bentley & Co.,

IRON Founders, Portable Steam Engine Builders and Boiler Makers, Corner Front and Plowman Sts., near Baltimore St. Bridge,

BALTIMORE, MARYLAND.

Their Engines are simple in their construction, compact and durable; they require no brick work in setting them, and occupy but a small space (a six horse power engine and boiler, standing on a cast iron plate of three by six feet.)

They also manufacture Major W. P. Williamson's new oscillating Engine; a superior article, combining cheapness and simplicity (one of which may be seen in operation at their shop.) Both of these engines are adapted to any purpose where power is required, and may be made of any capacity; and for economy in use of fuel are unsurpassed.

All kinds of machinery made to order. Steam Generators, Force Pumps, Wrought Iron Pipes and Fittings for Steam, Water, Gas, etc., constantly on hand, Baltimore, June 6, 1849.

PHILADELPHIA CAR MANUFACTORY,

CORNER SCHUYLKILL 2D AND HAMILTON STS.,

SPRING GARDEN, PHILADELPHIA CO., PA.

Kimball & Gorton,

Having recently constructed the above works, are prepared to construct at short notice all kinds of

RAILROAD CARS, Viz:

Passenger Cars of all classes—Open and Covered Freight and Express Cars—Coal Cars—Hand Cars & Trucks of all descriptions.

They are also prepared to furnish Chilled Wheels of any pattern. Car Wheels & Axles fitted and furnished. Snow Ploughs and Tenders made to order. Steel and other Springs always on hand.

All orders will be filled at short notice, and upon as good terms as at any other establishment in the country.

Omnibuses from the Exchange run within one square of the manufactory every 10 minutes during the day. Philadelphia, June 16, 1849. 1y25

LAWRENCE'S ROSENDALE HYDRAULIC

Cement. This Cement is warranted equal to any manufactured in this country, and has been pronounced superior to Francis' "Roman." Its value for Aqueducts, Locks, Bridges, Floods, and all Masonry exposed to dampness, is well known, as it sets immediately under water, and increases in solidity for years.

For sale in lots to suit purchasers, in tight papered barrels, by JOHN W. LAWRENCE,

142 Front-street, New York.

Orders for the above will be received and promptly attended to at this office. 32 1y.

Text Book of Mechanical Drawing,

FOR the use of SCHOOLS and SELF-INSTRUCTION, containing,

1st. A series of progressive practical problems in Geometry, with full explanations, couched in plain and simple terms; showing also the construction of the parallel ruler, plane scales and protractor.

2d. Examples for drawing plans, sections and elevations of Buildings and Machinery, the mode of drawing elevations from circular and polygonal plans, and the drawing of Roman and Grecian Mouldings.

3d. An introduction to Isometrical drawing, with 4 plates of examples.

4th. A treatise on Linear Perspective, with numerous examples and full explanations, rendering the study of the art easy and agreeable.

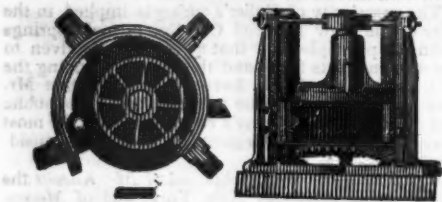
5th. Examples for the projection of shadows.

The whole illustrated with 50 STEEL PLATES.

Published by WM. MINIFIE & CO.,

114 Baltimore St., Baltimore, Md.

Price \$3, to be had of all the principal booksellers.

MACHINERY.**Henry Burden's Patent Revolving Shingling Machine.**

THE Subscriber having recently purchased the right of this machine for the United States, now offers to make transfers of the right to run said machine, or sell to those who may be desirous to purchase the right for one or more of the States.

This machine is now in successful operation in ten or twelve iron works in and about the vicinity of Pittsburgh, also at Phoenixville and Reading, Pa., Covington Iron Works, Md., Troy Rolling Mills, and Troy Iron and Nail Factory, Troy, N. Y., where it has given universal satisfaction.

Its advantages over the ordinary Forge Hammer are numerous: considerable saving in first cost; saving in power; the entire saving of shingler's, or hammerman's wages, as no attendance whatever is necessary, it being entirely self-acting; saving in time from the quantity of work done, as one machine is capable of working the iron from sixty puddling furnaces; saving of waste, as nothing but the scoria is thrown off, and that most effectually; saving of staffs, as none are used or required. The time required to furnish a bloom being only about six seconds, the scoria has no time to set, consequently is got rid of much easier than when allowed to congeal as under the hammer. The iron being discharged from the machine so hot, rolls better and is much easier on the rollers and machinery. The bars roll rounder, and are much better finished. The subscriber feels confident that persons who will examine for themselves the machinery in operation, will find it possesses more advantages than have been enumerated. For further particulars address the subscriber at Troy, N. Y. P. A. BURDEN.

Railroad Spikes and Wrought Iron Fastenings.

THE TROY IRON AND NAIL FACTORY, exclusive owner of all Henry Burden's Patented Machinery for making Spikes, have facilities for manufacturing large quantities upon short notice, and of a quality unsurpassed.

Wrought Iron Chairs, Clamps, Keys and Bolts for Railroad fastenings, also made to order. A full assortment of Ship and Boat Spikes always on hand.

All orders addressed to the Agent at the Factory will receive immediate attention.

P. A. BURDEN, Agent,
Troy Iron and Nail Factory, Troy, N. Y.

RAILROAD WHEELS.

CHILLED RAILROAD WHEELS.—THE UNDERSIGNED are now prepared to manufacture their Improved Corrugated Car Wheels, or Wheels with any form of spokes or discs, by a new process which prevents all strain on the metal, such as is produced in all other chilled wheels, by the manner of casting and cooling. By this new method of manufacture, the hubs of all kinds of wheels may be made whole—that is, without dividing them into sections—thus rendering the expense of banding unnecessary; and the wheels subjected to this process will be much stronger than those of the same size and weight, when made in the ordinary way.

A. WHITNEY & SON,
Willow St., below 13th,
Philadelphia, Pa.

CHILLED RAILROAD WHEELS.—THE UNDERSIGNED, the Original Inventor of the Plate Wheel with solid hub, is prepared to execute all orders for the same, promptly and faithfully, and solicits a share of the patronage for those kind of wheels which are now so much preferred, and which he originally produced after a large expenditure of time and money.

A. TIERS,
Point Pleasant Foundry.

He also offers to furnish Rolling Mill Castings, and other Mill Gearing, with promptness, having, he believes, the largest stock of such patterns to be found in the country.

A. T.
Kensington, Philadelphia Co.,
March 12, 1848.

ENGINE AND CAR WORKS.**DAVENPORT & BRIDGES,**

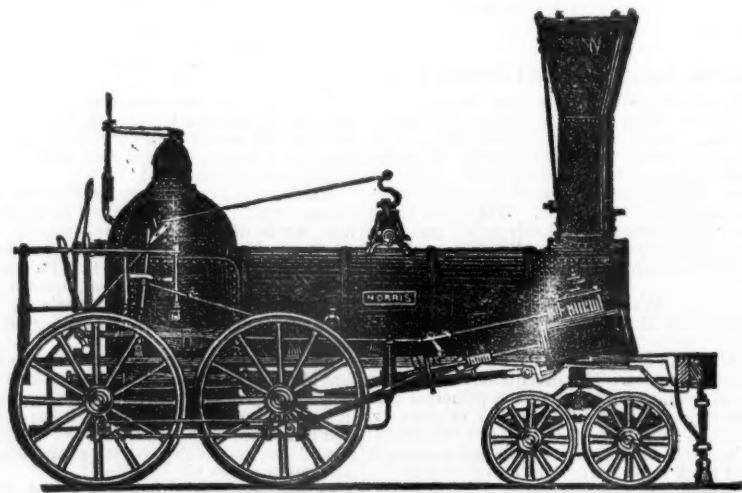
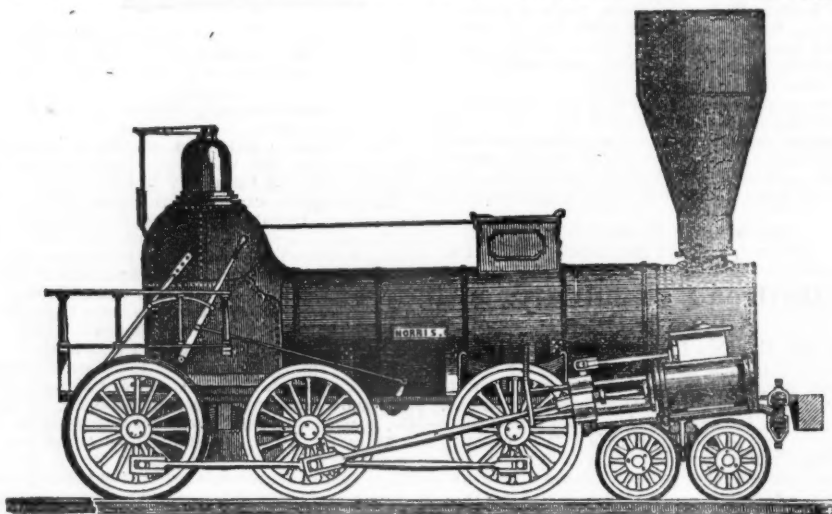
HAVING ASSOCIATED WITH THEM

MR. LEWIS KIRK, OF READING, PA.,

And recently enlarged their Establishment, (making it now the most extensive in the United States,) they are prepared to manufacture to order Locomotive Engines and Cars of every description. Stationary Engines, Steam Hammers, Boilers, and all kinds of Railroad Machinery. Also, Castings and Forge Irons of all kinds—including Chilled Wheels, Frogs, Chairs, Switches, Car Axles, and Locomotive Cranks, Connecting Rods, Steel Springs, Bolts, etc., etc. Orders from all parts of the country solicited for Engines and Cars, or any part or parts of the same. All orders will be furnished at short notice, and on as good terms as any manufactory in the country. Coaches pass our works every fifteen minutes during the day, from Brattle St., Boston.

DAVENPORT, BRIDGES & KIRK.

Cambridgeport, Mass., February 16th, 1849.

NORRIS' LOCOMOTIVE WORKS.
BUSHHILL, SCHUYLKILL SIXTH-ST., PHILADELPHIA,

THE UNDERSIGNED Manufacture to order Locomotive Steam Engines of any plan or size. Their shops being enlarged, and their arrangements considerably extended to facilitate the speedy execution of work in this branch, they can offer to Railway Companies unusual advantages for prompt delivery of Machinery of superior workmanship and finish.

Connected with the Locomotive business, they are also prepared to furnish, at short notice, Chilled Wheels for Cars of superior quality.

Wrought Iron Tyres made of any required size—the exact diameter of the Wheel Centre, being given, the Tyres are made to fit on same without the necessity of turning out inside.

Iron and Brass castings, Axles, etc., fitted up complete with Trucks or otherwise.

NORRIS, BROTHERS.